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ABSTRACT

The first volume of a nine volume series contains the summary and federal policy recommendation report of the National Needs Assessment Project, which surveyed the educational media and materials needs of more than 30,000 special educators in 33 states. After an executive summary, the report includes an introduction to the study, a description of the questionnaires used, a description of the respondent population, and a discussion of the study's special education student population. The major portion of the report is organized into the following six major areas of identified need (as determined in the survey): (1) more media and materials development, especially in the curriculum areas of social behavior and reading comprehension; (2) additional resources for teachers to develop their own materials; (3) improved parent directed instructional materials for home use; (4) development and refinement of a national materials information system; (5) more efficient and accessible distribution systems for loan materials and hardware; and (6) better training and assistance in the use of media and materials. (PHR/DB)

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National Needs Assessment of Educational Media & Materials for the Handicapped

Spring 1978

Carol A. Vale

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NATIONAL NEEDS ASSESSMENT OF EDUCATIONAL MEDIA AND MATERIALS FOR THE HANDICAPPED*

SPRING 1978

SUMMARY AND POLICY RECOMMEMDATIONS REPORT

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WASHINGTON, DC 20202

DATE: FEBRUARY 15, 1980

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and finally, to the more than 30,000 special educators across the nation who voluntarily gave their time and effort to complete a long and complex questionnaire. It is somehow fitting that their contribution will see its major reward from whatever catalyst the NNA provides for the betterment of educational opportunities for millions of handicapped children.

As I said at the beginning, the NNA owes its existence to many great people.

Berkeley, California
February 15, 1980

Carol A. Vale

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EXECUTIVE SUMMARY

The National Needs Assessment (NNA) is an attempt to document, on a national basis, the educational media and materials needs of handicapped students and the instructional needs of their special education teachers. The NNA consisted of a survey conducted in the Spring of 1978, with responses from a geographically balanced and generally representative group of more than 30,000 special educators -- teachers, supervisors, media specialists/ librarians, curriculum development specialists, and inservice training specialists -- in 33 states and territories.

The survey examined needs for each handicap category at both elementary and secondary levels in local as well as state-operated programs. The sample of students represented by the survey respondents includes about one of every five identified handicapped students in the United States.

The NNA provides information in the following six areas, indicated by special education teachers to be critical to the accomplishment of their instructional objectives:

I. Media and Materials Development
II. Teacher-Made Materials
III. Parent-Directed Child-Use Materials
IV. Information about Special Education Media and Materials
V. Distribution of Special Education Media and Materials
VI. Training in Special Education Media and Materials

What follows is a summary of findings in each of these areas of need, and a presentation of recommendations for federal policy to respond to these needs.

MEDIA AND MATERIALS DEVELOPMENT: SUMMARY OF FINDINGS

- 88% of all special education teachers surveyed, as well as 80% of all supervisors and other special education personnel, indicated a great or moderate need for new or improved media and materials -- the highest priority need cited by teachers in every handicap category as necessary to achieve their instructional objectives.

Curriculum Areas with Highest Priorities for Materials Development

- Fifteen curriculum areas were selected by at least 6% of the total respondent teacher population as highest priorities for media and materials development. Foremost among these were "appropriate social behavior," "reading comprehension," "self-acceptance," and "word attack skills." With few differences, the curriculum areas selected by teachers were also prioritized by supervisors and other special education personnel.

- For the most part, this list of highest priority curriculum areas includes the highest priorities for each handicap category. For a few more serious problem areas within handicap categories, the highest priority curriculum areas are not included on this list.

- This list of highest priority curriculum areas includes the curriculum areas with the greatest numbers of target students, as well as a few with relatively small numbers of target students.

- Projected nationally from the NNA target student frequencies, the total market for instructional materials development for the handicapped is estimated to be in excess of 5 million students.

- The more severe the handicap (as judged by problem area), the more handicap-specific are the prioritized curriculum area needs.

- For less severe handicaps, the high priority curriculum areas tend to be not only quite general across handicap categories, but also quite closely related to the regular education curriculum.

- For the most severe handicaps, teachers in non-public schools and institutions tend to select handicap-specific curriculum areas as high priorities. For the other handicap categories, there was virtually no difference between curriculum areas prioritized by public school and institutional and non-public school teachers.

- Priorities for children aged 11 and younger tend to be in the basic skills curriculum areas while those for students 12 and older are marked by a job preparation/vocational education cluster.

- The speech and language impaired category is unusual in that all priorities for this category, regardless of student problem area, age level, or educational setting, are quite handicap- or even problem-specific, with none of the more general curriculum areas which appear consistently in the other handicap categories.

Materials Formats and Media Hardware and Equipment

- Teachers currently use only a half-dozen or so formats, the same formats for all handicap categories. Highest ranked in just about every category are manipulatives and print materials -- "games, toys, puzzles," "manipulative objects and tools," "text/reference/library books," and "workbooks, worktexts."
- Teachers' preferred formats for materials development are generally the same as those they are currently using, with the addition of "programmed self-instructional materials," "multi-media kits," and "magazines and specialized comics."
- There is a very evident, very pronounced preference among teachers in all handicap categories for materials formats which are used independently by the student. In addition, these formats are characterized by high interest level, novelty, and provision for drill and practice.
- The hardware and equipment needed for effective use of the materials formats currently used by teachers are already easily accessible to these teachers.
- There is a very evident, though still low-profile trend toward more sophisticated instructional delivery systems -- "computer assisted instructional materials," "videotapes, closed-circuit TV" -- which showed the greatest increases in preference across all handicap categories, and were also the choices of hardware and equipment to which teachers would most like to have access.

Inadequacies of Currently Available Materials

- Teachers' primary reason for needing materials development, cited across all handicap categories, is lack of variety in available materials.
- Major inadequacies with respect to materials content are the failure to provide sufficient repetition or reinforcement of the material and inappropriateness with regard to interest, concept, and language/vocabulary levels, and to child's life experiences.
- Highest among inadequacies of materials use are inability to be used independently by the student, needs too much supplementation by the teacher, not adaptable for a variety of disabilities, doesn't suggest alternative learning strategies, doesn't provide for different entry levels, and doesn't provide for evaluation of student's progress.
- Among the physical properties of materials, only low child appeal is generally cited as a major inadequacy.
- The factors which most influenced respondents' selection of materials for purchase reflected the same inadequacies -- relevance to student disability, interest, language, and concept levels, versatility to be used by a wide range of students, and provision for independent student use.

MEDIA AND MATERIALS DEVELOPMENT: RECOMMENDATIONS

- BEH should systematically encourage commercial publishers to invest in the development and production of media and materials to meet the needs of the mildly handicapped learner, where it is warranted by market potential. It is suggested that this development approach take the form of multimedia kits with modular components from which teachers can select and adapt for individualized student programs, providing the versatility they need.

- BEH should directly invest in the development of educational media and materials for the more severely handicapped students, since it is unlikely that the commercial sector will participate in meeting these "thin market" needs. This investment can be jointly undertaken with commercial producers of specialized medical equipment or with other federal agencies involved with national health problems.

- BEH should invest in a long-range program in the development of appropriate hardware/software interface systems capable of providing the individualized instructional programs needed by handicapped students -- systems which can tailor content, can provide drill and feedback, and will appeal to the child.

- BEH should support a study to determine the current status of computer processing capability for instruction, including an anticipated time frame for LEA's acquiring such capability. This study will suggest the appropriate balance of funds to allocate to software development for the long run vs print material development for the short run.

TEACHER-MADE MATERIALS: SUMMARY OF FINDINGS

- About 82% of all teachers surveyed indicated a great or moderate need for additional resources, time, and training to develop their own materials, and over half of the teachers indicated that more than 25% of their materials are teacher-made.
- Teachers of the deaf and hard of hearing are especially high users and makers of teacher-made materials.
- More than half of all teachers surveyed have had no formal training in materials development and have learned what they know on the job.
- Teachers perceive both college faculty and experience on the job, with somewhat stronger emphasis on the latter, as the best sources of future training in materials design and adaptation.
- Most teachers and supervisors consider self-instructional kits to be of value for training in the design and adaptation of media and materials.
- Teachers indicate that materials construction skills are critical to their jobs, but rank them low as future training priorities.

TEACHER-MADE MATERIALS: RECOMMENDATIONS

- BEH should give high priority to increase resource support for teacher-made materials -- financial support (possibly through grants or competitions), released time, and workshops to provide appropriate training.
- BEH should establish a clearing house for existing teacher-made materials -- to find out what materials exist, to publicize them, and to provide demonstrations and workshops in their duplication and use.
- BEH should encourage teacher training programs to emphasize design skills so that teachers are better prepared in this critical area when they begin their careers.

PARENT-DIRECTED CHILD-USE MATERIALS: SUMMARY OF FINDINGS

- Parent-directed instructional materials for home use represent a relatively important unmet need across handicap categories, a need regarded as critical by 73% of the special education teachers, and especially so, by teachers of the speech and language impaired (83%).

- Parents are currently limited in their ability to participate by lack of access to appropriate materials and information, though most respondents felt such access was critical.

- Though virtually no parent training in the use of instructional media and materials is presently available, such training is viewed as an important aspect of both the teachers' and the supervisors' jobs, and ranks ahead of all other noninstructional uses of local school materials collections.

- The majority of teachers and supervisors were untrained or self-trained to work with parents in this area, and placed a high priority on their need for training to do so.

PARENT-DIRECTED CHILD-USE MATERIALS: RECOMMENDATIONS

- BEH should support workshops and conferences at local materials centers, where parents can be introduced to available materials through discussions and demonstrations, and made to feel welcome in the educational environment.

- BEH should make an assessment of the suitability of materials for parent-directed in-home use, with both teachers and parents participating, to determine which are directly transferrable and which require adaptation or modification for this purpose.

- BEH should support programs for training teachers and supervisors to help parents learn how to use instructional materials. Such training could be provided as inservice, through workshops or university extension classes, but ultimately should become part of regular preservice teacher training programs.

- BEH should encourage national materials information retrieval systems, both present and contemplated, to incorporate parental accessibility and to provide appropriate filing and indexing to enable parents to use them effectively.

MEDIA AND MATERIALS INFORMATION: SUMMARY OF FINDINGS

- More teachers and supervisors requested information about available instructional materials, conferences and workshops, and newly developed materials and adaptive devices than about any other topic, and, for some respondents, as often as twice a month.

- Even for the most frequently requested topics, more than a third of the teachers and almost as many supervisors report that such information is not readily accessible. The most glaring example of this information gap is the topic of newly developed materials and adaptive devices, for which 60% of the teachers and 51% of the supervisors report inadequate access, despite the fact that more than half of these respondents request such information.

- The major reasons for seeking information, for both teachers and supervisors, are matching specific materials to individual learning needs, curriculum planning, and identification of materials for preview/possible purchase.

- Generally, information and information sources are more available to, and more easily accessed by, supervisors than teachers.

- The most frequently used sources of information for both teachers and supervisors are catalogs and materials reviews, other teachers, professional literature, professional conferences/workshops/meetings, and newsletters. Except for newsletters, these are also the most valuable sources.

- Most information sources are accessible and free. Of those which are not free, relatively few teachers receive funds to support their use. A higher percentage but still less than half of the supervisors receive funds for this purpose.

- The least accessible information sources to both teachers and supervisors are materials information retrieval systems, both computerized and manual.

- Despite their value and moderately high level of use, learning resource centers (both regional and local), medical personnel, college staff, and consultants are not readily accessible to 25% or more of the teacher respondents.

- Both teachers and supervisors rank conferences and training sessions and consultant service substantially higher than all other preferred methods for delivery of information, though the percentage preferring these methods is less than the percentage currently using them, suggesting that their desirability is on the decline.

- o A low profile trend toward desire for more sophisticated, high-technology materials information delivery systems is already in evidence.

- o Most respondents report that they are unaware of materials information retrieval systems at any level, with commercial systems, NIMIS, and other national systems unfamiliar to as many as 75% of the teachers. Most familiar was ERIC/CEC, yet half of the teachers and 20% of the supervisors were unaware of this system.

- o Of those few who are aware, still fewer use any of the systems, but most of those users are satisfied with the system. The most used materials information retrieval systems are those at the district/county and regional levels and ERIC/CEC.

MEDIA AND MATERIALS INFORMATION: RECOMMENDATIONS

- o BEH should support development and refinement of a national materials information retrieval system. Potential users ought to be involved in this process to whatever extent possible to increase the likelihood of meeting user needs.

- o BEH should publicize existing and newly developed materials information retrieval systems and provide training in their effective use.

- o BEH should examine the potential of regional and local learning resource centers for identifying and providing information about available instructional materials, particularly those which are newly developed, on a regular program basis (for example, through workshops), rather than just in response to a particular question.

MEDIA AND MATERIALS DISTRIBUTION: SUMMARY OF FINDINGS

- Special education teachers are not heavily dependent upon borrowed materials.
- Teachers borrow materials chiefly to supplement classroom materials and to meet specific needs of individual students.
- Most teachers have convenient access to the school and district/county materials collections, but not to other, more distant collections.
- Frequency of use of a materials collection is a direct function of its proximity and accessibility to the teachers, ranging from once a week at the school site to once or twice a year at regional (multistate) and national centers.
- Teachers borrow most of the materials they do not already have in the classroom from the school collection and, to a lesser degree, the district/county center.
- Teachers of the blind and visually impaired and deaf and hard of hearing use national organizations as materials sources more frequently than do teachers in other handicap categories.
- Teachers rated the most frequently used collections as adequate in all respects except size and scope of collection.
- Supervisors and other special education personnel tend to use a greater variety of materials sources, rating them adequate in all respects except size and scope of collection and information on the content of the collection.
- The school and district/county collections are used by teachers for a number of activities besides borrowing -- primarily, browsing, direct pupil instruction, preview of materials, and use of professional literature.
- Supervisors and other special education personnel indicate that materials collections should be used more often than they presently are for parent training, demonstration of materials, materials production, preservice training, and use of materials information retrieval systems.

MEDIA AND MATERIALS DISTRIBUTION: RECOMMENDATIONS

- BEH should consider it a primary objective in the area of adequate materials distribution systems to open up presently inaccessible and under-utilized materials collections to the teachers. Since there is little hope that teachers will seek out such collections, the obvious alternative is to take the collections to the teachers. This could be done by regularly scheduled instructional materials demonstrations at the school site, transported as portable materials libraries -- "DEMObiles" -- similar to bookmobiles.

- BEH should examine and perhaps enlarge the role of regional resource centers to include greater emphasis on materials demonstrations.

- BEH should continue support for national organizations which provide a source of more specialized media and materials, such as those used by teachers of the blind and visually impaired and the deaf and hard of hearing.

- BEH should provide for opening up local materials collections to other significant activities -- parent training, materials demonstrations, materials production, preservice training, and use of materials information retrieval systems.

MEDIA AND MATERIALS TRAINING: SUMMARY OF FINDINGS

- Training needs of respondents are seen as especially important in the areas of selecting, designing/adapting, and evaluating media and materials, and training parents in their use -- areas also considered to be most critical to the performance of their jobs.
- The chief sources of prior training in these skills are college (preservice) training and self-training.
- The best sources of future training are seen as college faculty, experience on the job, and, to a somewhat lesser extent, regional consultants.
- Although respondents seemed to indicate that training in the above areas was available, logistical problems and lack of funds, time, and information present obstacles to acquiring such training. Many respondents report that their schools/facilities lack regular procedures for making training needs known, and, in addition, 26% of the supervisors and other special education personnel report that no teacher inservice time is allocated to media and materials training.
- Though respondents indicate a general lack of familiarity with programmed materials or packaged self-instructional training kits, such kits are perceived to be of high potential value in their future training.

MEDIA AND MATERIALS TRAINING: RECOMMENDATIONS

- BEH should support development of self-instructional kits for teacher training at the inservice level, thus reducing several of the logistical barriers to acquiring further training. For example, such kits could be used on-site, eliminating travel time and problems, and reduced need for human trainers should result in lower training costs.
- BEH should provide support for more college and university extension courses for inservice training, with such courses being held in the schools themselves or at other central and convenient locations.
- BEH should expand the use of DEMObiles to provide for more intensive exposure to materials selection and evaluation.
- BEH should begin to lay some groundwork to prepare teachers for the onset of widespread usage of sophisticated computerized instructional systems, through the development of preservice training courses for future teachers, and workshops and seminars for teachers already on the job.

INTRODUCTION

The National Needs Assessment (NNA) is an attempt to document, on a national basis, the educational media and materials needs of handicapped students and the instructional needs of their special education teachers. Initiated and funded by the Bureau of Education for the Handicapped (BEH) and contracted to the Berkeley, California office of Educational Testing Service (ETS), the NNA consisted of a survey conducted in the Spring of 1978, with responses from more than 30,000 special educators in 33 states and territories. This survey was designed to provide information concerning:

I. Media and Materials Priority Needs

II. General Items about Special Education Media and Materials

III. Training in the Use of Special Education Media and Materials

IV. Distribution of Special Education Media and Materials

V. Information about Special Education Media and Materials

For each of these five content areas, data were collected and analyzed by handicapping condition and were aggregated at both state and national levels. State level participation in this study for public school systems was generally at the option of the Chief State School Officer. Residential schools and other special education institutions in all states participated at their own option. A distribution of the total respondent population, by state, appears in Table 1.

TABLE 1

DISTRIBUTION OF NATIONAL RESPONDENT POPULATION

Number of Respondents = 30,059

PARTICIPATING STATES (All Respondents)

	Frequency	Percent*		Frequency	Percent*
Alaska	125	0.4	New Jersey	293	1.0
Arizona	654	2.2	New Mexico	277	0.9
Arkansas	352	1.2	North Dakota	225	0.8
California	1452	4.8	Ohio	2576	8.6
Colorado	808	2.7	Oklahoma	663	2.2
Delaware	174	0.6	Oregon	684	2.3
Hawaii	78	0.3	Pennsylvania	2098	7.0
Idaho	338	1.1	Puerto Rico	105	0.4
Indiana	1139	3.8	South Dakota	131	0.4
Kansas	1099	3.7	Tennessee	990	3.3
Louisiana	882	2.9	Texas	4448	14.8
Maryland	256	0.9	Utah	422	1.4
Michigan	2329	7.8	Vermont	133	0.4
Minnesota	1281	4.3	Virgin Islands	22	0.1
Mississippi	837	2.8	Washington	634	2.1
Missouri	1672	5.6	West Virginia	461	1.5
Nebraska	491	1.6			

NON-PARTICIPATING STATES (Respondents from Residential Schools and Other Special Education Institutions Only)

	Frequency	Percent*		Frequency	Percent*
Alabama	79	0.3	Montana	22	0.1
Connecticut	39	0.1	Nevada	3	0.0
District of Columbia	12	0.0	New Hampshire	0	---
Florida	90	0.3	New York	209	0.7
Georgia	177	0.6	North Carolina	103	0.3
Illinois	115	0.4	Rhode Island	0	---
Iowa	65	0.2	South Carolina	68	0.2
Kentucky	71	0.2	Virginia	71	0.2
Maine	10	0.0	Wisconsin	76	0.3
Massachusetts	109	0.4	Wyoming	18	0.1

	Frequency	Percent*
QUESTIONNAIRES NOT IDENTIFIABLE BY STATE	593	2.0

* Percentages are rounded to the first decimal place.

DESCRIPTION OF THE QUESTIONNAIRES

There were six basic versions of the questionnaire for teachers, differing by the following handicap categories:

	Full Title	Abbreviated Title †
1.	Blind and Visually Impaired	Blind
2.	Deaf and Hard of Hearing	Deaf
3.	Specific Learning Disabled, Mildly (Educable) Mentally Retarded, Emotionally Disturbed/Behavior Disordered	Mildly Handicapped (EMR/LD) or Mild
4.	Speech and Language Impaired	Speech
5.	Physically/Orthopedically Handicapped	Phys/Ortho
6.	Multiply Handicapped, Severely and Profoundly Handicapped, Moderately (Trainable) Mentally Retarded, Severely and Profoundly Mentally Retarded	Severely Handicapped or Severe

There was one basic version of the questionnaire, which covered all handicap categories, for:

7.	Special Education Supervisors. Media Specialists/Librarians, Curriculum Development Specialists, Inservice Training Specialists	Supervisors and Other Special Education Personnel or Supervisors/Others

The questionnaire consisted of a twelve-page booklet with a fold-in sheet. Its organization is described below.

PAGES 1 - 3: INTRODUCTORY

A cover letter to the respondent urging cooperation in the study appeared on page 1. Page 2 carried a set of four questions and answers which respondents might wish to know before filling out the questionnaire. Page 3 contained a general explanation of the layout of the questionnaire and directions for completing it. These pages were identical for all teacher and supervisor forms.

PAGES 4 - 5: MEDIA AND MATERIALS PRIORITY NEEDS

This section consisted of two pages, accompanied by a fold-in sheet which provided directions and code lists for response to these pages. The respondent was asked to indicate his three highest priorities for materials development by curriculum area and by various student characteristics--chronological age, functional level, and problem or handicap area. He then responded to questions linked to these priorities (e.g., preferred format, inadequacies in currently available materials).

This section, and the fold-in sheet, were handicap-specific: thus, for teachers, there were six versions and, for supervisors, one version.

PAGE 6: GENERAL ITEMS ABOUT MEDIA AND MATERIALS

This page consisted of a set of questions about media and materials which were not strictly related to the three areas of prioritization. Some of these questions were also handicap-specific, and thus there were six versions of this page for teachers and one for supervisors.

PAGES 7 - 9: QUESTIONS ON ONE OF THE FOLLOWING:

1. Training in the Use of Media and Materials
2. Distribution of Media and Materials
3. Information about Media and Materials

This portion of the questionnaire was not handicap-specific; i.e., there was only one version of each of the above three sections for the teacher population. However, no teacher responded to more than one of the three sections. Instead, each of the six handicap-specific teacher populations was randomly divided, within states, into three equal groups, each receiving one of the sections. Thus one-third of the total teacher population, with proportional representation of handicap categories, received the training section on these pages; one-third, the distribution section; and one-third, the information section.

There were three analogous sections for the supervisor form, differing from those for teachers, but the same for all supervisors. Similarily, the sampling plan for supervisors paralleled that for teachers: a random third of all supervisors, within states, received one or another of these three sections.

PAGE 11: DEMOGRAPHIC ITEMS

This page was the same for all handicap categories for the teacher population. A different version was used for the supervisor form.

PAGE 12: BLANK; FOR ETS USE ONLY

There were thus a total of eighteen forms of the teacher questionnaire (6 handicap categories, 3 subforms each, differing only on pages 7-9). There were also three subforms for the supervisors' questionnaire -- the basic version, with either training or distribution or information on pages 7-9.

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† Abbreviated titles are used in the text when the full title would be cumbersome, and in tables, to conserve space.

DESCRIPTION OF THE RESPONDENT POPULATION

In almost all participating states, an attempt was made to reach every special education teacher with a questionnaire.† Distribution procedures differed from state to state, but were variants of two basic plans: direct mailing to potential respondents using a state-provided mailing list, or an intermediary approach through school district representatives who distributed the questionnaires to potential respondents within their districts, and then sent confirmation to ETS of the numbers of questionnaires actually distributed.* An exception was California, where teachers were surveyed at the California State Federation/Council for Exceptional Children Conference in Los Angeles in November, 1977.

Table 2 presents the overall return rates for each participating state, as well as the national return rates for each handicap category. From the confirmatory information provided by "district plan" states and the small percentages of questionnaires returned as undeliverable in "direct mail" states, it appears that the distribution procedures were reasonably successful, and moreover, that the representation of each participating state in the aggregated national total is fairly adequate. Return rates by state differed somewhat, ranging from 22% to 51%, but most were in the mid-30%'s. (The return rate of 85% for California is an anomaly due to the method of surveying in that state, and does not reflect an overrepresentation of California respondents in the study. On the contrary, California is quite substantially underrepresented.)

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† North Dakota opted for a sampling plan; in Maryland, only a few counties elected to participate by forwarding questionnaires to their teachers; and New Jersey chose a plan that could not be expected to reach all special education teachers.

* For a detailed description of the distribution procedures used, see the NNA Statistical Report, Introduction, p. 4.

TABLE 2

RETURN RATE DATA: PARTICIPATING STATES AND HANDICAP CATEGORIES

PARTICIPATING STATE RETURN RATES †

State	Approximate Return Rate	State	Approximate Return Rate
Alaska	30	New Jersey	22
Arizona	35	New Mexico	28
Arkansas	29	North Dakota	51
California	85	Ohio	32
Colorado	37	Oklahoma	40
Delaware	32	Oregon	32
Hawaii	37	Pennsylvania	25
Idaho	40	Puerto Rico	11
Indiana	22	South Dakota	38
Kansas	38	Tennessee	41
Louisiana	31	Texas	40
Maryland	25	Utah	33
Michigan	26	Vermont	34
Minnesota	35	Virgin Islands	41
Mississippi	50	Washington	36
Missouri	43	West Virginia	27
Nebraska	39		

NATIONAL RETURN RATES BY HANDICAP CATEGORY *

Handicap Category	Approximate Number of Questionnaires Distributed	Number of Completed Questionnaires Returned	Approximate Return Rate
Blind and Visually Impaired	2,014	685	34
Deaf and Hard of Hearing	5,331	1,932	36
Mildly Handicapped	50,279	17,281	34
Speech and Language Impaired	12,095	3,864	32
Physically/Orthopedically Handicapped	2,115	763	36
Severely Handicapped	10,080	3,519	35
Supervisors and Other Special Education Personnel	4,954	2.015	41
TOTAL	86,868	30,059	35

† Reference: NNA Statistical Report, Introduction, pp. a-gg.

* Reference: NNA Statistical Report, Introduction, p. 5.

National return rates by handicap category are remarkably consistent, ranging from 32% to 36%. A slightly higher response rate (41%) was achieved for the form for supervisors and other nonteaching special education personnel.

Given the fairly consistent return rates by state and the virtually uniform national return rates by handicap category, the aggregated respondent teacher population across handicap categories may be considered a reasonably representative stand-in for the group of participating states, reflecting the appropriate proportionate distribution of handicap categories. To what extent the participating states can adequately portray the total national population is discussed below.

While a number of states elected not to participate, they were, fortunately, a geographically balanced group, as were the participating states. For example, the Carolinas, Virginia, Georgia, and Alabama did not participate, but Arkansas, Louisiana, Missouri, and Mississippi did; Montana and Wyoming did not, but Minnesota, Nebraska and the Dakotas did; Kentucky did not, but West Virginia and Tennessee did; Nevada did not, but Arizona, Colorado, Idaho, Utah, and New Mexico did. Iowa, Illinois, and Wisconsin did not, but Indiana, Kansas, Oklahoma, Michigan, and Ohio did; Florida did not, but Texas did; the District of Columbia did not, but Delaware and Maryland did; New York did not, but Pennsylvania and New Jersey did. All the west coast states participated, as did Alaska and Hawaii. The only conceivable "hole" in representation is among the six New England states, where Vermont was the only participant.

Among the large states, New York, Illinois, and Florida did not participate, but Michigan, Ohio, Pennsylvania, Texas, and, in a limited way, California did. The California approach was designed to insure adequate large-city

representation -- most of the CSF/CEC Convention participants were from the immediate Los Angeles vicinity.

Thus, although sampling in any statistically appropriate or systematic way was precluded by external constraints upon the study, it does appear that a geographically representative national "sample" did emerge from the group of participating states. It is doubtful that any conclusion presented in this report would change materially had the non-participating states also been included.

As in any survey study, the question of bias due to the voluntary nature of response must be confronted. While a comparison of relevant characteristics of respondents and non-respondents cannot be made directly, some judgment of the representativeness of respondents can be made from a study of their demographic data.

A summary of the major demographic data for all special education teachers who responded to the NNA is presented in Table 3. While there are no easily accessible national distribution data for special education teachers on these demographic variables against which the NNA respondent population can be compared, where it is possible to make such judgments, the percentages of the NNA respondent group appear to be in accord with expectations based on general knowledge -- e.g., educational level, professional experience, class size, ages of students taught, and type of community.

Moreover, the teacher demographic characteristics show the expected pattern of differences and similarities in breakdowns for various subgroups. Across handicap categories, for example, teacher distributions do not differ by type of community, school size, or level of professional experience. They

TABLE 3 §

DEMOGRAPHIC DESCRIPTION OF
TEACHERS IN SPECIAL EDUCATION

Number of Respondents = 28,044

LEVEL OF FORMAL EDUCATION:	
In Special Education:	
	5% some college courses
	49% B.A. or work beyond B.A.
	38% M.A. or work beyond M.A.
In Other Education Specialty:	
	12% Some college courses
	41% B.A. or work beyond B.A.
	16% M.A. or work beyond M.A.
PROFESSIONAL EXPERIENCE:	65% between 1 and 7 years
	20% between 8 and 15 years
PRIMARY ROLE:	47% special class teachers
	23% resource room teachers
	13% clinician/therapist/pathologist
CLASS SIZE:	39% from 10 to 19 students
	18% at least 40 or more students
	17% from 5 to 9 students
	15% from 20 to 29 students
INSTRUCTIONAL GROUP SIZE:	58% with small groups (2 to 6 students)
	27% with individual students
AGE OF STUDENTS TAUGHT:	47% ages 5 - 11
	34% ages 12 - 17
EMPLOYED BY:	82% local public school district
	15% state and other agency
TYPE OF FACILITY:	75% regular school
	18% special education school
SCHOOL SIZE:	54% enrollment under 500
	27% enrollment 500 - 1000
TYPE OF COMMUNITY:	39% towns or small cities
	26% suburbs or medium-sized cities
	12% large cities
	12% rural near cities
	9% rural

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§ Reference: NNA Statistical Report, Section I, Subsection A,
Respondent Population 8: Teachers in Special Education
Note: All percentages are rounded to the nearest integer.

are also generally similar in level of education, except that only about a quarter of the teachers of the mildly and severely handicapped have master's degrees, while for the speech and language impaired, about the same proportion of teachers have master's (47%) as have bachelor's degrees (46%). The higher educational level of this latter group can be explained by the fact that 85% of them are clinicians or therapists for which licensing requirements commonly include advanced degrees.

As would be expected, a higher percentage of teachers whose primary role is as special class teacher is found among teachers of the deaf and hard of hearing (59%), physically/orthopedically handicapped (61%), and severely handicapped (71%). Teachers of the blind and visually impaired have a lower percentage of special class teachers (40%), and 21% indicate their role is that of an itinerant teacher. The resource room teachers are chiefly among the mildly handicapped, 35% of whom indicated this as their primary role.

Class size and size of instructional groupings also showed some expected differences. Class sizes of 5-9 or 10-19 are reported by between 59% and 70% of the teachers in all handicap categories except the speech and language impaired, where 67% of the teachers indicated a student load in excess of 40. For instructional grouping, the pattern of teachers working with students in small groups (2-6 students) or with individual students was quite consistent, generally with about twice as many using the former as the latter. Teachers of the blind and visually impaired and of the physically/orthopedically handicapped reversed the usual pattern, with more teachers working with individuals than in small groups.

One would, of course, expect differences across handicap categories in the educational setting. Teachers of the mildly handicapped and of the speech and

language impaired are employed almost exclusively by the local public school districts and work in regular schools. This pattern holds somewhat for teachers of the physically/orthopedically handicapped, 79% of whom are employed by the public school district, but only 43% of whom work in regular schools while 34% work in special education schools. For teachers of the blind, the deaf, and the severely handicapped, on the other hand, only about 45% are employed by the public school district, while another 45% or so are employed by state or other agencies. For these groups, the type of facility is preponderantly (more than 50%) the special education school, and for the blind and the deaf, these schools are almost always residential.

The picture that emerges is what one would typically expect for each handicap category. In other breakdowns -- for example, the three random splits within each handicap category for the special sections on training, distribution, and information (see page 3) -- the demographic picture for the subgroups is virtually identical to that for the respective total group. Moreover, the non-random breakdowns by public school teachers and institutional and non-public school teachers are consistent within handicap category, with only the obvious differences related to educational setting.

Though conclusions regarding the representativeness of any survey which relies on a voluntary (non-random) sample of respondents must necessarily be indirect and inferential, it is reasonable in this case to make the inference that the NNA national sample does warrant the acceptance of the data as an accurate portrayal of the instructional needs of the national special education teacher population and of the media and materials needs they report for their students. Thus, wherever possible in this report, questions have been aggregated across handicap categories and are interpreted for this total population, with subgroup differences noted where they occur.

Table 4 presents the demographic data for the respondent group of special education supervisors and other nonteaching special education personnel, approximately two-thirds of whom identify themselves as "supervisors." It can be immediately noted that distribution by type of community is virtually identical to that for teachers.

As would be expected, more supervisors than teachers are employed by state or other agencies and fewer work in regular schools. For level of formal education, some consideration must be given to the fact that special education is a relatively new field and that many of those who are currently supervisors received their formal education in other education-related specialties. While this is also true for teachers, it is evident from a comparison of the educational data in Tables 3 and 4 that the supervisor/other special educational personnel group is generally better educated than the teacher group -- a not surprising finding. Supervisory experience, reported here only for those who designated themselves as "supervisors," is generally less than seven years.

Of some interest is the finding that 20% of the respondents to this form of the questionnaire designated their primary role as "other." While one can only speculate about the specific nature of such a role, it is likely that it includes a fair number of administrative personnel.

It is obvious that the arguments for representativeness of the NNA teacher respondent population can be easily extended to the NNA respondent group of special education supervisors and other special education personnel. Thus, it may be concluded that this sample provides an adequate representation of the national population of nonteaching special education personnel.

TABLE 4 §

DEMOGRAPHIC DESCRIPTION OF
SPECIAL EDUCATION SUPERVISORS
AND OTHER SPECIAL EDUCATION PERSONNEL

Number of Respondents = 2,015

LEVEL OF FORMAL EDUCATION:		
	In Special Education:	
		* 12% some college courses
		12% B.A. or work beyond B.A.
		55% M.A. or work beyond M.A.
		4% Ph.D., Ed.D.
	In Other Education Specialty:	
		5% Some college courses
		21% B.A. or work beyond B.A.
		46% M.A. or work beyond M.A.
		5% Ph.D., Ed.D.
SUPERVISORY EXPERIENCE:† (for supervisors only)		66% between 1 and 7 years
		19% between 8 and 15 years
PRIMARY ROLE:		64% Supervisor
		8% Media Specialist or Librarian
		4% Curriculum Development Specialist
		2% Inservice Training Specialist
		20% other
EMPLOYED BY:		70% local public school district
		25% state or other agency
TYPE OF FACILITY:		52% regular school
		25% special education school
TYPE OF COMMUNITY:		40% towns or small cities
		23% suburbs or medium-size cities
		11% large cities
		12% rural near cities
		13% rural

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§ Reference: NNA Statistical Report, Section I, Subsection A, Respondent Population 7: Supervisors and Other Special Education Personnel

* All percentages are rounded to the nearest integer.

† Reference: NNA Statistical Report, Section I, Subsection K, Respondent Population 7: Supervisors and Other Special Education Personnel

COVERAGE OF THE SPECIAL EDUCATION STUDENT POPULATION

According to child count reports provided by the Bureau of Education for the Handicapped, there were 3,777,106 special education students reported by the states and other education agencies in the 1977-1978 school year.* Total special education enrollment in the states which participated in the NNA, including California, was 61.5% of the national total, or 2,323,322 students. Excluding California, this total was 1,998,340 students or 52.9% of the national special education enrollment. Thus, conservatively, the states included in the NNA represent one of every two handicapped students receiving special education and related services.

An estimate of the number of handicapped students covered by the NNA was calculated, by handicap category, from the number of students reported by teachers in the demographic section of the questionnaire as their present teaching load.† A comparison of the number of students covered by the NNA, calculated as described, with the BEH count of special education student enrollment in participating states appears in Table 5.

In those instances where the BEH funding categories do not directly match the NNA study categories, combined subtotals were used; i.e., the subtotal of the NNA physically/orthopedically, multiply, and severely and profoundly handicapped groups is compared to the subtotal of the BEH orthopedically and other health impaired groups, and the three NNA categories of mentally retarded are combined for comparison with the BEH mentally retarded group. Details of these subgroup comparisons are shown in the lower half of Table 5.

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* BEH, DAS, Distribution of Children Served by Handicapping Condition, School Year 1977-1978, PL 94-142 and PL 89-313.

† A weighted average midpoint of the student frequency range was used, with a frequency of 50 assigned to the response "40 or more students" (see NNA Statistical Report, Section I, Subsection A, Question 5).

TABLE 5

COMPARISON OF SPECIAL EDUCATION ENROLLMENT IN STATES WHICH PARTICIPATED IN THE NNA WITH NUMBERS OF STUDENTS COVERED BY THE NNA AND WITH NUMBERS OF NNA TARGET STUDENTS

	+ Special Education Enrollment in Participating States	§ Students Covered by NNA (estimated) Frequency	Percent	† NNA Target Students (estimated)
Blind and Visually Impaired	17,084	12,295	72	16,113
Deaf and Hard of Hearing	41,461	36,135	87	52,937
Speech and Language Impaired	686,783	160,125	23	180,158
Learning Disabled	557,908	174,109	31	269,024
Emotionally Disturbed	112,156	38,964	35	60,004
* Orthopedically Handicapped/ Other Health Impaired	84,149	25,245	30	39,501
** Mentally Retarded	498,799	188,236	38	295,166
TOTAL	1,998,340	635,513	32	912,903

* BREAKOUT FOR ORTHOPEDICALLY HANDICAPPED/OTHER HEALTH IMPAIRED

Orthopedically Handicapped	43,993	13,374	Physically/Orthopedically Handicapped	20,136
Other Health Impaired	40,156	6,837	Multiply Handicapped	11,163
		5,034	Severely and Profoundly Handicapped	8,202
	84,149	25,245		39,501

** BREAKOUT FOR MENTALLY RETARDED

		137,954	Educable Mentally Retarded	213,160
		32,568	Trainable Mentally Retarded	53,087
		17,714	Severely and Profoundly Mentally Retarded	28,919
Mentally Retarded	498,799	188,236		295,166

+ Figures are taken from BEH, DAS, Distribution of Children Served by Handicapping Condition, School Year 1977-1978, PL 94-142 and PL 89-313. These figures exclude California, since only a very small sample of the California teacher population was surveyed (See NNA Statistical Report, Introduction, p. 4).

§ Reference: NNA Statistical Report, Section I, Subsection A, Question 5

† Reference: NNA Statistical Report, Section I, Subsection F, Question 1

Because California participation was so minimal, California enrollment is eliminated from the BEH counts in Table 5. The percentages of students covered by the NNA are more appropriately calculated using this reduced base.

These NNA student coverage figures are probably reasonably accurate -- an independent calculation* of the coverage of blind and visually impaired students came within 100 students of the student coverage figure in Table 5 for this handicap category -- except the figure for the speech and language impaired, which is believed to be an underestimate. It is likely that, for this group, the method used to calculate the number of students covered is biased downward,† and it is probable that the percentage of students covered in this handicap category is closer to the mid-30% figures found for the other high-incidence categories.

These student coverage rates correspond fairly well with the teacher return rates presented in Table 2 -- a reasonable expectation. The quite large student coverage rates for the blind and visually impaired and deaf and hard of hearing are probably due to the high NNA participation level in special schools for these students. Teachers in these schools would undoubtedly have more students with these specific handicaps than would their public school teacher counterparts.

The total figure of 635,515 students covered by the NNA, which is probably somewhat underestimated, represents 32% of the participating states' special education student enrollment and about 17% of the national special education

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* Reference: NNA Statistical Report, Section II, Subsection B, Question 5, Respondent Population 1: Teachers of the Blind and Visually Impaired

† In contrast to the other handicap categories, teachers of the speech and language impaired are responsible for large numbers of students -- 67% of these teachers indicate they work with "40 or more students." Thus, the arbitrary midpoint assignment of 50 for this response alternative (see footnote on page 13) is probably too low for this respondent group.

student enrollment. A rough guess is that the actual representation is 2%-3% higher, or about one of every five special education students.

Also included in Table 5 is a set of figures headed "NNA Target Students," estimated from the approximate number of students for whom teachers prioritized materials development needs.* These figures over-represent the number of students covered by the NNA because teachers occasionally selected more than one of their three priorities for the same students. Because of the method of computing the total target student frequency, such students would be counted more than once. (This effect is most pronounced for the blind and visually impaired and deaf and hard of hearing, where teachers appear to be responsible for fewer students. These were the only handicap categories where more teachers reported class sizes of 5-9 than of 10-19.)

Where target student figures are presented for a given curriculum area (as in Table 8), whether in a particular handicap category or for all handicap categories combined, there is no double counting. Hence, projection to an approximate national market figure for materials development in a particular curriculum area is achieved simply by increasing the NNA target student frequencies by a factor of 5.

The target student figures are presented here because they are fairly good estimates of the total "market" for materials development among students of the NNA total respondent teacher population. Since some students have more than one high priority need, they represent more than one "customer" in the materials marketplace. On the average, each covered student represents 1.4 "needs." Projected to the total special education student population, this suggests a total "market" of almost 5.3 million units, a point which will be quite relevant to the discussion in the next section.

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* Reference: NNA Statistical Report, Section I, Subsection F, Question 1, Respondent Population 8: Teachers in Special Education

ORGANIZATION OF THIS REPORT

The NNA National Report is comprised of two parts. The first part consists of the eight-volume Statistical Report, submitted to BEH on April 30, 1979. It contains a detailed analysis of all questionnaire responses, presented for each handicap category separately and for all handicap categories combined. Integrated throughout the Statistical Report is a detailed Users' Guide, which explains each segment of the data analysis.

The second part of the NNA National Report consists of the Summary and Policy Recommendations Report. This report both summarizes the evidence contained in the NNA Statistical Report and presents recommendations for federal policy in the area of educational materials needs of handicapped students and their special education teachers. Though entirely self-contained, it is designed as a companion to, not a replacement for, the Statistical Report. That is, some of the policy recommendations in this Summary and Policy Recommendations Report cannot be meaningfully implemented without adjunctive use of the Statistical Report. To aid in this process, the summarized data in this report are referenced to the full data presentation in the Statistical Report.

Unlike the Statistical Report, in which the evidence is organized by the five domains of inquiry addressed by the NNA (see page 1), this Summary and Policy Recommendations Report is centered around the needs reported by special education teachers to be critical to the accomplishment of their instructional objectives.

These needs appear in Table 6. Response data are presented in this table for teachers in each handicap category as well as for teachers in all handicap categories combined. The response alternatives are listed in decreasing frequency order, using the combined frequency for "great" and "moderate" as

TABLE 6 §

REPORTED NEEDS OF SPECIAL EDUCATION TEACHERS

CONSIDERING EVERYTHING YOU NEED TO MEET YOUR INSTRUCTIONAL OBJECTIVES, INDICATE THE EXTENT OF YOUR NEED FOR:
(Percentages reported below are the sum of responses to "great" and "moderate")

	ALL HANDICAPS	BLIND	DEAF	MILD	SPEECH	PHYS/ORTHO	SEVERE
Number of Teacher Respondents (base for percentage calculation)	28,044	685	1,932	17,281	3,864	763	3,519
	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers
† New or improved instructional materials	87.8	87.2	88.6	87.6	89.2	82.0	88.1
† Additional funds to purchase media and materials	82.4	71.7	78.5	84.4	82.0	80.6	78.2
† Additional resources (time, money) to develop own materials	81.9	78.2	84.2	82.0	81.6	77.5	82.1
† New/improved parent-directed instructional materials for home use	73.2	69.9	73.0	73.6	83.0	65.6	62.6
Better information about media and materials	64.5	67.0	63.6	63.7	64.1	63.5	68.8
New or improved instructional hardware/equipment	57.9	66.3	49.0	57.2	54.9	65.2	66.5
Better media support services	53.5	56.5	54.2	52.7	51.2	55.4	58.5
Better training in use of media and materials	46.6	55.2	46.4	45.6	47.2	47.9	48.9
Easier access to loan materials	45.7	49.9	52.3	52.8	50.2	51.7	55.6
Improved access to hardware and equipment	44.8	45.7	38.4	43.6	42.1	51.6	-
Greater assistance in use of media and materials	38.2	45.9	40.3	37.6	36.2	39.2	40.3

§ Reference: NNA Statistical Report, Section II, Subsection B, Question 9 (Question 8 for Teachers of the Blind and Visually Impaired)

† Needs for which the percentage of teachers indicating "great" exceeded the percentage of teachers indicating "moderate."

a conservative approach to the problem of differential interpretation of the response scale by individual respondents.

The data in Table 6 indicate critical needs for new or improved instructional materials, additional funds to purchase media and materials, additional resources for teachers to develop their own materials, and new or improved parent-directed instructional materials for home use. Less urgent, but still significant, are needs for better information about media and materials, more efficient and easily accessible distribution systems for loan materials and hardware, and better training and assistance in the use of media and materials.

Table 7, which reports the needs indicated to be critical by supervisors and other special education personnel, is organized like Table 6, with responses for "great" and "moderate" combined and presented in decreasing frequency order. Table 7 generally confirms the needs expressed by teachers, though there is somewhat more emphasis among supervisors and other special education personnel than among teachers on the need for funds to purchase materials and hardware. Among the supervisors, 44% indicate elsewhere in the questionnaire that the major difficulty they face in purchasing media and materials is the lack of adequate funds.*

Like the teachers, supervisors and other special education personnel consider the needs for media and materials information, improved distribution systems, and training in the use of media and materials to be significant, but less so than the needs for resources to develop and adapt media and materials and for new or improved media and materials.

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* Reference: NNA Statistical Report, Section II, Subsection B, Question 5, Respondent Population 7: Supervisors and Other Special Education Personnel

TABLE 7§

REPORTED NEEDS OF SUPERVISORS AND OTHER SPECIAL EDUCATION PERSONNEL

Number of Respondents = 2,015

WHAT IS THE EXTENT OF YOUR NEED FOR:
(Percentages reported below are the sum of responses to "great" and "moderate")

	Percentage of Respondents
† Additional funds to purchase media and materials	84.0
† Additional resources for development/adaptation of media and materials	81.4
New or improved media and materials	79.8
† Additional funds to purchase hardware	76.2
Better information about instructional media and materials	77.0
† Improved collections of media and materials from which to borrow	70.5
Additional training in instructing teachers in media and materials	70.1
† Better access to resources for training teachers	67.9
† Better information about loan sources for media and materials	62.6
Better information about hardware and equipment	61.2
New or improved hardware and equipment	61.1
† Easier borrowing process	55.4

§ Reference: NNA Statistical Report, Section II, Subsection B, Question 8, Respondent Population 7: Supervisors and Other Special Education Personnel

† Needs for which the percentage of respondents indicating "great" exceeded the percentage of respondents indicating "moderate."

Because of the striking congruence among special education teachers across all handicap categories, and because the needs expressed by teachers are generally corroborated by their supervisors and other special education personnel, the responses for the total respondent teacher population are used to define the prioritization of their instructional needs. These needs include all of the content areas on which the study was originally focused (see page 1), as well as two others which emerged from examination of the NNA data. This report is thus organized into the following six major areas of need:

I. Media and materials development needs and criteria for prioritization, including new/improved instructional hardware and equipment

II. Teacher-made materials

III. Parent-directed materials for home use

IV. Information about special education media and materials

V. Distribution of special education media and materials, including media support services and access to loan materials, hardware and equipment

VI. Training and assistance in the use of special education media and materials

Note that the need for money to purchase media and materials is omitted from this report as it is outside the scope of this study and that, in a couple of cases, response alternatives from Table 6 have been combined for discussion as a single need.

I. MEDIA AND MATERIALS DEVELOPMENT

It is apparent from Table 6 that, in order to achieve their instructional objectives, the greatest need of special education teachers is the development of new or improved instructional media and materials. Elaboration and specification of the details regarding this need constituted the major focus of the NNA, with data collected on:

A. curriculum areas in which development was most needed
B. formats for materials development preferred by teachers
C. availability of media hardware and equipment
D. teacher-perceived inadequacies of currently existing materials

A. CURRICULUM AREAS

The primary objective of the NNA was the prioritization by special education teachers of the curriculum areas in which materials development was most urgently needed. From a list of 99 curriculum areas covering academic skills, social development, and handicap-specific coping skills, each respondent selected the three highest priority needs for media and materials development most apparent in his day-to-day work with handicapped students. For purposes of this report, no distinction is made between first, second, and third priorities -- a priority is recognized only as being among the respondent's top three choices.

Each such curriculum area was chosen in conjunction with a set of student characteristics (chronological age, functional level, and problem or handicap area) describing the "target" students for that curriculum area -- those students for whom instructional materials in the selected curriculum area should be designed.

The data concerning which curriculum areas were most highly prioritized by teachers are presented in this section from the following perspectives:

1. by handicap category
2. by numbers of target students
3. by student problem area
4. by educational setting
5. by chronological age level of student

1. Curriculum Areas Prioritized by Handicap Category

Table 8, on pages 24 and 25, presents the highest priority curriculum areas, in decreasing frequency order, for the total teacher population and for teachers in each handicap category. Each curriculum area is accompanied by the percentage of teachers who selected that area among his top three priorities, whether first, second, or third choice. The number of teacher respondents in each handicap category appears at the top of the appropriate segment of Table 8.

For the most part, the top priorities in each handicap category are reflected by the set of priorities for the total respondent teacher population, but there are some important exceptions, indicated by the starred curriculum areas in each handicap category. "Auditory comprehension" and "voice production," "production of isolated speech sounds," and "production of words" all rank in the top nine curriculum area priorities for teachers of the speech and language impaired, each with more than 10% of the respondents selecting them, yet they are not among the top 15 priorities overall. Similarly, "gross motor development" and

TABLE 8 §

CURRICULUM AREAS MOST FREQUENTLY CHOSEN AMONG RESPONDENTS' TOP THREE PRIORITIES FOR MEDIA AND MATERIALS DEVELOPMENT

TOTAL RESPONDENT TEACHER POPULATION

Number of Teacher Respondents = 28,044
Estimated Number of Target Students taught by Respondent Teacher Population = 964,655

Curriculum Area	Respondents Choosing This Curriculum Area: Frequency	Respondents Choosing This Curriculum Area: Percentage	Number of Target Students *
Appropriate Social Behavior/ † Appropriate Response to Others/ † Appropriate Display of Emotions	5,094	18.2	55,618
Reading Comprehension	4,397	15.7	52,499
Self-Acceptance	3,717	13.3	43,376
Word Attack Skills	3,715	13.3	44,497
Connected Speech/Fluency	3,031	10.8	43,944
Computation	2,669	9.5	30,863
Remedial Reading	2,580	9.2	34,065
Reasoning/Decision Making Skills	2,401	8.6	29,114
Job Preparation/Skills Development	2,365	8.4	31,467
Concept Development/ Generalization	2,332	8.3	28,257
Attending/Responding	2,310	8.2	24,032
Vocabulary Development	2,121	7.6	24,996
Interpersonal Relations † Social Interaction	2,053	7.3	24,161
Production of Phrases, Sentences	2,011	7.2	30,314
Listening Skills	1,889	6.7	25,068

§ Reference: NNA Statistical Report, Section I, Subsection C

† Curriculum area description used in Questionnaire Form 6, for teachers of the multiply handicapped, severely and profoundly handicapped, moderately (trainable) mentally retarded, severely and profoundly mentally retarded.

* Projection to a national estimate can be approximated by increasing these figures by a factor of 5.

TABLE 8 (Continued) §

CURRICULUM AREAS MOST FREQUENTLY CHOSEN AMONG RESPONDENTS' TOP THREE PRIORITIES FOR MEDIA AND MATERIALS DEVELOPMENT

BLIND AND VISUALLY IMPAIRED

Number of Teacher Respondents = 685
Number of Target Students = 16,113

Curriculum Areas	† Percentage of Teachers	Number of Target Students
Appropriate Social Behavior	15.5	894
Concept Development/ Generalization	11.7	687
Job Preparation/Skills Development	10.1	538
Self-Acceptance	9.5	506
Attending/Responding	8.9	499
Listening Skills	8.9	411
Reading Comprehension	8.3	459
* Identification of Personal Interests and Skills	7.6	425
* Visual Perception	7.3	305
* Dressing, Grooming, and Personal Hygiene	7.3	464
Remedial Reading	7.0	364

DEAF AND HARD OF HEARING

Number of Teacher Respondents = 1,932
Number of Target Students = 52,937

Curriculum Areas	† Percentage of Teachers	Number of Target Students
Reading Comprehension	30.8	5,631
Vocabulary Development	15.1	2,628
Production of Phrases, Sentences	12.9	1,978
Reasoning/Decision Making Skills	12.2	2,290
Appropriate Social Behavior	11.5	2,116
Concept Development/ Generalization	11.4	1,921
* Grammar	9.0	1,575
Self-Acceptance	8.5	1,610
* Understanding Phrases and Sentences	8.0	1,179
* Sign Language	7.1	1,003
Job Preparation/Skills Development	6.7	1,620
* Functioning in the Community	6.3	1,135

Attending/Responding	5.0	625

MILDLY HANDICAPPED (EMR/LD)

Number of Teacher Respondents = 17,281
Number of Target Students = 592,988

Curriculum Areas	† Percentage of Teachers	Number of Target Students
Appropriate Social Behavior	21.9	42,654
Reading Comprehension	20.7	44,291
Word Attack Skills	19.7	41,511
Self-Acceptance	18.4	38,502
Computation	14.0	28,457
Remedial Reading	13.8	32,050
Reasoning/Decision Making Skills	10.0	21,329
Job Preparation/Skills Development	9.8	23,599
Interpersonal Relations	9.1	18,730
Reading Vocabulary Development	8.9	18,752
* Auditory Visual Integration	8.7	16,159
* Spelling	8.1	17,335
-----		
* Functioning in the Community	5.9	13,251

SPEECH AND LANGUAGE IMPAIRED

Number of Teacher Respondents = 3,864
Number of Target Students = 180,158

Curriculum Areas	† Percentage of Teachers	Number of Target Students
Connected Speech	40.0	33,674
Production of Phrases, Sentences	30.2	22,731
Speech Fluency	24.1	4,843
* Auditory Comprehension	16.5	10,395
Concept Development/ Generalization	16.1	10,315
* Production of Isolated Speech Sounds	14.2	13,346
* Production of Words	13.5	11,626
Listening Skills	12.6	9,163
* Voice Production	11.3	2,201
* Understanding Connected Speech	9.7	5,175
* Discrimination of Sounds	9.3	7,198
* Auditory Sequential Memory	7.2	3,820
* Understanding Phrases and Sentences	6.3	3,716

Attending/Responding	5.2	3,438
* Auditory Perception	4.7	2,826
* Prespeech Motor Activities	4.2	2,068

PHYSICALLY/ORTHOPEDICALLY HANDICAPPED

Number of Teacher Respondents = 763
Number of Target Students = 20,136

Curriculum Areas	† Percentage of Teachers	Number of Target Students
Self-Acceptance	13.1	1,020
Attending/Responding	12.7	918
* Gross Motor Development	11.4	1,111
Reading Comprehension	11.4	859
* Sensory Motor Integration	11.1	1,080

SEVERELY HANDICAPPED

Number of Teacher Respondents = 3,519
Number of Target Students = 102,323

Curriculum Areas	† Percentage of Teachers	Number of Target Students
Attending/Responding	22.2	7,551
* Dressing, Grooming, and Personal Hygiene	17.7	6,458
Appropriate Response to Others	12.0	4,370
Appropriate Display of Emotions	11.8	4,073
Job Preparation/Skills Development	10.9	4,717
* Functioning in the Community	10.0	4,218
* Fine Motor Development	9.6	3,319
* Gross Motor Development	8.5	3,095
* Feeding and Eating	7.7	2,290
Social Interaction	7.6	3,215
* Basic Sensory Awareness	7.5	2,440
-----		
* Toileting	6.6	1,597
-----		
* Use of Money	5.3	1,988

§ Reference: NNA Statistical Report, Section I, Subsections C and D, Question 1

† The percentage of teachers selecting each curriculum area is based on the size of the respondent teacher group for the respective handicap category.

* Curriculum areas not included in the list of curriculum areas prioritized by the total respondent teacher population.

"sensory-motor integration," ranking third and fifth, respectively, for teachers of the physically/orthopedically handicapped, and "dressing, grooming, personal hygiene," ranking second for teachers of the severely retarded and severely and profoundly handicapped, do not appear on the list for the total population.

On the other hand, all of the top priorities for teachers of the blind, the deaf, and the mildly handicapped are represented by the priorities for the total teacher population. In part, this is an obvious reflection of the fact that the data for teachers of the mildly handicapped outweigh the data in other handicap categories. Clearly, the reason that there are many more teachers in the area of the mildly handicapped stems from the fact that there are many more students in this category, more than in all other categories combined. This introduces a second perspective from which curriculum area priorities must be considered.

2. Curriculum Areas Prioritized by Numbers of Target Students

Table 8, in addition to the percentages of teachers choosing each curriculum area, also displays the numbers of target students† who would benefit from materials development effort in these curriculum areas.

For the most part, curriculum area priorities determined by the numbers of target students are directly related to those selected as high priorities by teachers. But again there are some notable exceptions.

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† Note that the size of the target student group for each curriculum area reflects only an estimated number of students taught by the respective respondent teacher population. For an approximate projected national figure, the NNA target student frequencies should be multiplied by 5. (See page 16 for discussion of extrapolation to a national estimate.)

number of students who are speech and language impaired, yet is the third highest priority for this handicap category, selected by 24% of their teachers. Less striking is "voice production" for this same handicap category, which also has relatively few target students compared with other curriculum areas selected by approximately the same percentage of teachers. In the severely handicapped category, the curriculum area of "social interaction" has a relatively high target student frequency given the percentage of teachers who prioritized it.

In no case, however, is a curriculum area omitted from the list for any handicap category which has a greater number of target students than those which appear in Table 8. Thus, all of the highest priority curriculum areas for all handicap categories, whether determined by teacher selection percentage or by the number of target students, appear in Table 8.

Table 9 presents the highest priority curriculum areas selected by the respondent group of supervisors and other special education personnel. The list of curriculum areas from which these respondents selected their priorities was shorter than the list available to teachers, and the curriculum areas were not so detailed. Nonetheless, confirmation of the findings for teachers is clear.

From the response data for teachers in Table 8, it is evident that the curriculum areas which are highly prioritized by teachers in only a single handicap category and those which have high teacher-selection priorities but a relatively small number of target students are all very handicap-specific. This observation leads to a discussion of yet another perspective on curriculum area prioritization.

TABLE 9§

CURRICULUM AREAS MOST FREQUENTLY CHOSEN
BY SUPERVISORS AND OTHER SPECIAL EDUCATION PERSONNEL
AMONG THEIR TOP THREE PRIORITIES FOR MEDIA AND MATERIALS DEVELOPMENT

Number of Respondents = 2,015

	Percentage of Respondents
Appropriate Social Behavior	27.2
Self-Concept	17.8
Independent Living Skills (e.g., money managment, home management)	16.0
Career Education	15.2
Cognitive Development (e.g., classification, association, sequencing, memory)	14.9
Expressive Language Development (e.g., production of words; connected speech)	14.4
Reading Comprehension and Appreciation	13.9
Interpersonal Relations	10.9
Self-Care Skills (e.g., eating, grooming)	10.9
Remedial Reading	10.7
Receptive Language Development (understanding phrases; listening skills)	10.1
Functioning in Community (e.g., shopping, use of public services)	9.6

§ Reference: NNA Statistical Report, Section I, Subsection C, Respondent Population 7: Supervisors and Other Special Education Personnel

3. Curriculum Areas Prioritized by Student Problem Area

Recall that the curriculum area priorities were chosen in conjunction with certain characteristics which described the type of students for which materials needs were most critical. One of these characteristics was the problem area of these students. The problem areas were, of course, handicap-specific, and are listed below for the respective handicap categories (except for the blind and visually impaired†).

Handicap Category	Problem Area
Deaf and Hard of Hearing	Student Level of Language Functioning None Below Average Average Above Average
Mildly Handicapped	Student Handicap Area Educable Mentally Retarded Emotionally Disturbed/Behavior Disordered Specific Learning Disabled
Speech and Language Impaired	Student Problem Area Voice: Chronic Hoarseness and Weakness Stuttering Language Use Language Comprehension Language Comprehension and Use Articulation Hearing Impairment Auditory Perception
Physically/Orthopedically Handicapped	Primary Communication Mode of Student Talking Writing Use of Communication Devices Gesturing/Signing
Severely Handicapped	Student Handicap Area Trainable Mentally Retarded Severely and Profoundly Mentally Retarded Multiply Handicapped Severely and Profoundly Handicapped

† No data are available for problem areas within this handicap category.

The highest priority curriculum areas for students with each of these types of problem are presented in Table 10 (pp. 31 and 32). Indicated for each handicap category are the number of teacher respondents and the estimated number of target students in that handicap category who are taught by the respondent teacher population. These are followed by the breakdown with respect to problem areas for that handicap category, with each problem area heading a column. On the first line under the problem area designation are the number (and percentage) of the respondent teachers who prioritized materials needs for students in that problem area,† and just beneath that is the number of target students for materials development in the problem area.

Listed next are the highest priority curriculum areas which were chosen for students in the respective problem area. The percentage of teachers selecting each curriculum area is based on the number of teachers choosing materials priorities in the given problem area.

The most immediately evident observation in Table 10 is that each problem area has relatively few high-priority curriculum areas. Closer examination points up another observation, which might even be called a trend -- the more severe the handicap, the more handicap-specific are the prioritized curriculum areas.

For example, in the category of the deaf and hard of hearing, the only curriculum areas of any real consequence for students with no level of language functioning are "attending/responding" and "sign language."

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† Because each teacher chose three priorities for materials development, and may have prioritized materials in more than one problem area, these parenthesized percentages will generally sum to more than 100%.

TABLE 10 §

HIGHEST PRIORITY CURRICULUM AREA SELECTIONS BY PROBLEM OR HANDICAP AREA OF STUDENT

DEAF AND HARD OF HEARING

Number of Teacher Respondents = 1,932
Estimated Number of Target Students taught by Respondent Teacher Population = 52,937

STUDENT LEVEL OF LANGUAGE FUNCTIONING	NONE	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE
† Number of Teachers	136 (7.0%)	1,118 (57.9%)	900 (46.6%)	121 (6.3%)
Number of Target Students	1,695	26,317	21,913	2,433
Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers
* Attending/Responding	25.0	Reading Comprehension	25.8	Reading Comprehension	30.1	Reading Comprehension	25.6
* Sign Language	15.4	* Production of Phrases, Sentences	14.5	Reading Vocabulary Development	14.2	Reading Vocabulary Development	10.7
		Reading Vocabulary Development	13.0	Reasoning/Decision Making Skills	11.0	Reasoning/Decision Making Skills	10.7
		* Concept Development/ Generalization	11.9				
		* Appropriate Social Behavior	11.4				
		Reasoning/Decision Making Skills	10.5				

SPEECH AND LANGUAGE IMPAIRED

Number of Teacher Respondents = 3,864
Estimated Number of Target Students taught by Respondent Teacher Population = 180,158

STUDENT PROBLEM AREA	VOICE - CHRONIC HOARSENESS AND WEAKNESS	STUTTERING	LANGUAGE USE	LANGUAGE COMPREHENSION
† Number of Teachers	467 (12.1%)	1,132 (29.3%)	890 (23.0%)	674 (17.4%)
Number of Target Students	2,152	5,400	15,354	10,869
Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers
* Voice Production	86.7	* Speech Fluency	77.2	Connected Speech	28.0	Auditory Comprehension	28.0
				Production of Phrases, Sentences	27.8	Understanding Connected Speech	15.9
						Listening Skills	14.2
						* Understanding Phrases, Sentences	11.1

SPEECH AND LANGUAGE IMPAIRED (Continued)

STUDENT PROBLEM AREA	LANGUAGE COMPREHENSION AND USE	ARTICULATION	HEARING IMPAIRED	AUDITORY COMPREHENSION
† Number of Teachers	2,679 (69.3%)	1,967 (50.9%)	319 (8.3%)	685 (17.7%)
Number of Target Students	66,837	60,330	5,249	12,288
Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers
Connected Speech	21.9	Connected Speech	36.8	Auditory Comprehension	12.9	Listening Skills	20.7
Production of Phrases, Sentences	19.2	* Production of Isolated Speech Sounds	25.6	Connected Speech	12.2	* Discrimination of Sounds	19.3
* Concept Development/ Generalization	17.6	* Production of Words	18.8	Understanding Connected Speech	10.7	* Auditory Perception	16.4
Auditory Comprehension	10.2	Production of Phrases, Sentences	18.5	Production of Phrases, Sentences	10.0	Auditory Comprehension	15.5
						* Auditory Sequential Memory	12.7

§ Reference: NNA Statistical Report, Section I, Subsection J

† The number of teachers prioritizing materials needs in each student problem area serves as the base for percentage computations for curriculum areas selected in that problem area. See text on page 30 for explanation of the percentage in parentheses.

* Curriculum areas not shared across problem areas within a given handicap category.

TABLE 10 (Continued) §

HIGHEST PRIORITY CURRICULUM AREA SELECTIONS BY PROBLEM OR HANDICAP AREA OF STUDENT

MILDLY HANDICAPPED (EMR/LD)

Number of Teacher Respondents = 17,281
Estimated Number of Target Students taught by Respondent Teacher Population = 592,988

STUDENT HANDICAP AREA	EDUCABLE MENTALLY RETARDED	EMOTIONALLY DISTURBED/ BEHAVIOR DISORDERED	SPECIFIC LEARNING DISABLED
† Number of Teachers	6,705 (38.8%)	2,706 (15.7%)	8,620 (49.9%)
Number of Target Students	213,160	60,004	259,024

Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers
Appropriate Social Behavior	20.0	Appropriate Social Behavior	51.0	Word Attack Skills	23.6
Reading Comprehension	19.7	Self-Acceptance	26.2	Reading Comprehension	21.5
Word Attack Skills	16.2	* Interpersonal Relations	23.7	Self-Acceptance	16.6
* Job Preparation/Skills Development	15.4			* Remedial Reading	16.5
Self-Acceptance	12.9			Computation	15.7
Computation	12.1			* Auditory-Visual Integration	11.4
* Functioning in the Community	10.4			* Spelling	11.3
* Reasoning/Decision Making Skills	9.2				

PHYSICALLY/ORTHOPEDICALLY HANDICAPPED

Number of Teacher Respondents = 763
Estimated Number of Target Students taught by Respondent Teacher Population = 20,136

PRIMARY COMMUNICATION MODE OF STUDENT	TALKING	WRITING	USE OF COMMUNICATION DEVICES	GESTURING/SIGNING
† Number of Teachers	559 (73.3%)	158 (20.7%)	89 (11.7%)	163 (21.4%)
Number of Target Students	12,671	2,891	972	3,029

Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers
* Self-Acceptance	13.2	* Computation	22.8	* Use of Communication Board	31.5	* Gross Motor Development	23.9
Reading Comprehension	9.5	Reading Comprehension	15.2			* Attending/Responding	23.3
* Job Preparation/Skills Development	9.3					* Feeding, Eating	18.4
* Appropriate Social Behavior	9.3					Sensory Motor Integration	17.2
Sensory Motor Integration	9.1						

SEVERELY HANDICAPPED

Number of Teacher Respondents = 3,519
Estimated Number of Target Students taught by Respondent Teacher Population = 102,323

STUDENT HANDICAP AREA	TRAINABLE MENTALLY RETARDED	SEVERELY AND PROFOUNDLY MENTALLY RETARDED	MULTIPLY HANDICAPPED	SEVERELY AND PROFOUNDLY HANDICAPPED
† Number of Teachers	1,869 (53.1%)	1,167 (33.2%)	634 (18.0%)	419 (11.9%)
Number of Target Students	53,087	28,919	11,163	8,202

Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers	Curriculum Areas	Percentage of Teachers
Dressing, Grooming, and Personal Hygiene	16.4	Attending/Responding	30.8	Attending/Responding	18.1	Attending/Responding	24.1
* Job Preparation/Skills Development	15.5	Dressing, Grooming, and Personal Hygiene	19.5	Gross Motor Development	9.1	Basic Sensory Awareness	17.2
* Functioning in the Community	14.9	Appropriate Response to Others	10.7	Feeding, Eating	9.1	Gross Motor Development	15.5
* Appropriate Display of Emotions	13.5	Feeding, Eating	10.1			Feeding, Eating	15.3
Attending/Responding	11.0	Basic Sensory Awareness	9.9			Toileting	10.0
Appropriate Response to Others	11.0	* Fine Motor Development	9.9			Dressing, Grooming, and Personal Hygiene	9.8
		Toileting	9.8				

§ Reference: NNA Statistical Report, Section I, Subsection J

† The number of teachers prioritizing materials needs in each student problem area serves as the base for percentage computations for curriculum areas selected in that problem area. See text on page 30 for explanation of the percentage in parentheses.

* Curriculum areas not shared across problem areas within a given handicap category.

For students at all other language levels, the highest priority curriculum areas are the more general ones of "reading comprehension," "reading vocabulary development," and "reasoning/decision making skills," though note the high priority for "production of phrases, sentences" for students with below average language level.

The trend is apparent again among physically/orthopedically handicapped students, with "use of communication board" the only priority of any note for students who respond primarily through communication devices, and "gross motor development," "attending/responding," "feeding, eating," and "sensory motor integration" for students who respond primarily by gesturing or signing. Yet, for students whose primary response mode is either talking or writing, the highest priority areas are "reading comprehension," "self-acceptance," "computation," etc. -- much more general than those for the more severe problem areas.

Moreover, the trend is reinforced by comparison of the mildly handicapped group with the severely handicapped group. Highest priorities for the former are in the general areas of "appropriate social behavior," "reading comprehension," "self-acceptance," etc., while those for the latter are all in more fundamental survival skills -- "attending/responding," "dressing, grooming, personal hygiene," "feeding, eating," "gross motor development," etc.

Even within the severely handicapped category, the priorities for the trainable mentally retarded include such things as "job preparation/skills development" and "functioning in the community," which do not appear among the priorities for the severely and profoundly mentally retarded, multiply handicapped, and severely and profoundly handicapped.

The speech and language impaired category is somewhat off-trend in that the priorities for every speech problem area are quite specific to that problem. There is not a single priority, either for the entire handicap category or for any problem area within that category, which generalizes to other handicap categories or to the regular education curriculum (such as "self-acceptance" or "appropriate social behavior" or "reading comprehension"). This is evidently a result of the fact that most speech teachers are therapists rather than instructors.

In fact, back in Table 8, it is clear that the only reason "connected speech/speech fluency" is a high overall priority is because it was an overwhelming choice of teachers of the speech and language impaired. Of the target students for these curriculum areas, more than 90% are from this handicap category. Similarly, "production of phrases and sentences" is almost exclusively a priority for speech and language impaired, with about 77% of the target students in this handicap category. There is some overlap here, however, with the deaf and hard of hearing category (noted earlier), which accounts for only about 7% of the target students for this curriculum area. Yet it was the third highest priority for teachers in this handicap category, selected particularly for students functioning at a below average language level.

4. Curriculum Areas Prioritized by Educational Setting

The trend for more handicap-specific, survival skills priorities among the more severely handicapped, and for more generalizable curriculum area priorities among the less severely handicapped is present also in a

contrast of the priorities selected by public school teachers with those selected by teachers in institutions and non-public schools, if one assumes that the severely handicapped are more frequently found in the latter setting. This contrast, presented in Table 11 (pages 36 and 37), is more subtle than the contrast by problem areas in Table 10, perhaps in part because the assumption about the distribution of setting for the seriously handicapped is undoubtedly less reliable than the breakout by problem area.

The trend is most apparent for the severely handicapped and physically/orthopedically handicapped categories where institutional and non-public school teachers emphasize "gross motor development," "ambulation," "feeding, eating," and "basic sensory awareness," but do not deal with "job preparation/skills development," "reading comprehension," "computation," "concept development/generalization," or "functioning in the community." (Note the starred curriculum areas, indicating areas not shared by public school and institutional/non-public school teachers within a given handicap category.)

Moreover, in curriculum areas prioritized by both public school and institutional and non-public school teachers, the more basic survival skills are prioritized by a greater percentage of the latter than the former -- for example, "attending/responding" was chosen by 28.9% of institutional and non-public school teachers of the severely handicapped but only by 17.4% of public school teachers in that same handicap category. For the physically/orthopedically handicapped, the corresponding percentages were 16.0% for institutional and non-public school teachers, and 11% for public school teachers. In this same handicap category,

TABLE 11 §

CURRICULUM AREA PRIORITIES BY EDUCATIONAL SETTING OF STUDENTS

BLIND AND VISUALLY IMPAIRED

Number of Teacher Respondents = 685
Estimated Number of Target Students taught by Respondent Teacher Population = 16,113

PUBLIC SCHOOL TEACHERS

† Number of Teachers = 301 (43.9%)
Number of Target Students = 4,681

Curriculum Areas	Percentage of Teachers
Appropriate Social Behavior	16.3
* Self-Acceptance	14.0
* Visual Perception	12.3
* Listening Skills	12.3
Concept Development/ Generalization	12.0
* Reading Comprehension	11.0
Job Preparation/Skills Development	11.0

INSTITUTIONAL AND NON-PUBLIC SCHOOL TEACHERS

† Number of Teachers = 353 (51.5%)
Number of Target Students = 10,747

Curriculum Areas	Percentage of Teachers
Appropriate Social Behavior	14.7
Concept Development/ Generalization	12.2
* Dressing, Grooming and Personal Hygiene	11.0
* Attending/Responding	9.3
Job Preparation/Skills Development	9.3

DEAF AND HARD OF HEARING

Number of Teacher Respondents = 1,932
Estimated Number of Target Students taught by Respondent Teacher Population = 52,937

PUBLIC SCHOOL TEACHERS

† Number of Teachers = 845 (43.7%)
Number of Target Students = 18,666

Curriculum Areas	Percentage of Teachers
Reading Comprehension	35.0
Reading Vocabulary Development	18.2
* Production of Phrases, Sentences	17.6
Reasoning/Decision Making Skills	13.5
Concept Development/ Generalization	12.8
Appropriate Social Behavior	10.7
* Self-Acceptance	10.5

INSTITUTIONAL AND NON-PUBLIC SCHOOL TEACHERS

† Number of Teachers = 1,033 (53.5%)
Number of Target Students = 33,291

Curriculum Areas	Percentage of Teachers
Reading Comprehension	28.4
Reading Vocabulary Development	12.9
Appropriate Social Behavior	12.5
Reasoning/Decision Making Skills	10.9
Concept Development/ Generalization	10.4

MILDLY HANDICAPPED (EMR/LD)

Number of Teacher Respondents = 17,281
Estimated Number of Target Students taught by Respondent Teacher Population = 592,988

PUBLIC SCHOOL TEACHERS

† Number of Teachers = 15,736 (91.1%)
Number of Target Students = 540,199

Curriculum Areas	Percentage of Teachers
Appropriate Social Behavior	21.5
Reading Comprehension	21.3
Word Attack Skills	20.6
Self-Acceptance	18.5
Computation	14.5
Remedial Reading	14.0
Reasoning/Decision Making Skills	10.1
Job Preparation/Skills Development	9.6

INSTITUTIONAL AND NON-PUBLIC SCHOOL TEACHERS

† Number of Teachers = 1,197 (6.9%)
Number of Target Students = 42,968

Curriculum Areas	Percentage of Teachers
Appropriate Social Behavior	27.8
Self-Acceptance	18.3
Reading Comprehension	14.1
* Interpersonal Relations	13.1
Remedial Reading	13.0
Job Preparation/Skills Development	12.0
Word Attack Skills	10.9
Computation	9.9
Reasoning/Decision Making Skills	9.7

§ Reference: NNA Statistical Report, Section I, Subsections L and N

† The number of respondent teachers in each educational setting serves as the base for percentage computations for curriculum areas prioritized for students in that setting.

The numbers of teachers in the two educational settings do not sum to the total number of teachers within a given handicap category because, in a small number of cases, omissions in the demographic data made identification of teacher's educational setting impossible.

* Curriculum areas not shared as priorities by teachers in both educational settings.

TABLE 11 (Continued) §

CURRICULUM AREA PRIORITIES BY EDUCATIONAL SETTING OF STUDENTS

SPEECH AND LANGUAGE IMPAIRED

Number of Teacher Respondents = 3,864
Estimated Number of Target Students taught by Respondent Teacher Population = 180,158

PUBLIC SCHOOL TEACHERS

† Number of Teachers = 3,338 (86.4%)
Number of Target Students = 155,768

Curriculum Areas	Percentage of Teachers
Connected Speech	41.9
Production of Phrases, Sentences	30.7
Speech Fluency	25.9
Auditory Comprehension	16.6
Concept Development/ Generalization	16.0
Production of Isolated Speech Sounds	14.8
* Listening Skills	13.3
Production of Words	13.0
* Voice Production	11.7

INSTITUTIONAL AND NON-PUBLIC SCHOOL TEACHERS

† Number of Teachers = 458 (11.9%)
Number of Target Students = 22,391

Curriculum Areas	Percentage of Teachers
Connected Speech	27.9
Production of Phrases, Sentences	27.1
Concept Development/ Generalization	17.9
Production of Words	17.7
Auditory Comprehension	17.0
Speech Fluency	12.7
* Attending/Responding	12.7
* Prespeech Motor Activities	10.7
* Understanding Phrases and Sentences	10.5
Production of Isolated Speech Sounds	10.3
* Understanding Connected Speech	10.0

PHYSICALLY/ORTHOPEDICALLY HANDICAPPED

Number of Teacher Respondents = 763
Estimated Number of Target Students taught by Respondent Teacher Population = 20,136

PUBLIC SCHOOL TEACHERS

† Number of Teachers = 535 (70.1%)
Number of Target Students = 13,719

Curriculum Areas	Percentage of Teachers
Self-Acceptance	13.3
* Reading Comprehension	13.1
Attending/Responding	11.0
* Job Preparation/Skills Development	10.3
* Computation	9.5
* Concept Development/ Generalization	9.3
Sensory Motor Integration	9.3

INSTITUTIONAL AND NON-PUBLIC SCHOOL TEACHERS

† Number of Teachers = 194 (25.4%)
Number of Target Students = 5,624

Curriculum Areas	Percentage of Teachers
* Gross Motor Development	21.1
Sensory Motor Integration	16.5
Attending/Responding	16.0
Self-Acceptance	11.3
* Ambulation	10.3
* Feeding, Eating	9.3

SEVERELY HANDICAPPED

Number of Teacher Respondents = 3,519
Estimated Number of Target Students taught by Respondent Teacher Population = 102,323

PUBLIC SCHOOL TEACHERS

† Number of Teachers = 1,938 (55.1%)
Number of Target Students = 52,410

Curriculum Areas	Percentage of Teachers
Dressing, Grooming, and Personal Hygiene	17.6
Attending/Responding	17.4
* Job Preparation/Skills Development	13.0
Appropriate Display of Emotions	12.8
Appropriate Response to Others	12.1
* Functioning in the Community	12.0
Fine Motor Development	9.2

INSTITUTIONAL AND NON-PUBLIC SCHOOL TEACHERS

† Number of Teachers = 1,477 (41.9%)
Number of Target Students = 47,603

Curriculum Areas	Percentage of Teachers
Attending/Responding	28.9
Dressing, Grooming, and Personal Hygiene	18.2
Appropriate Response to Others	12.3
* Basic Sensory Awareness	11.4
Appropriate Display of Emotions	10.8
Fine Motor Development	10.2
* Feeding, Eating	10.2
* Gross Motor Development	9.7

§ Reference: NNA Statistical Report, Section I, Subsections L and N

† The number of respondent teachers in each educational setting serves as the base for percentage computations for curriculum areas prioritized for students in that setting.

The numbers of teachers in the two educational settings do not sum to the total number of teachers within a given handicap category because, in a small number of cases, omissions in the demographic data made identification of teacher's educational setting impossible.

* Curriculum areas not shared as priorities by teachers in both educational settings.

the curriculum area "sensory motor integration" was ranked second at 16.5% for institutional and non-public school teachers, and seventh at 9.3% for public school teachers.

The blind and visually impaired category also falls within the scope of the trend, with relatively high priorities for such survival skills as "dressing, grooming, personal hygiene" and "attending/responding" among institutional and non-public school teachers, whereas "self acceptance," "visual perception," "listening skills," and "reading comprehension" are prioritized by public school teachers.

Among the deaf and hard of hearing, the mildly handicapped, and the speech and language impaired, there is virtually complete overlap between institutional/non-public and public school teachers' priorities, though there were some differential emphases indicated by the percentages of teachers selecting curriculum areas in the two groups. For example, in the mildly handicapped group, the percentages of public school teachers choosing "reading comprehension" and "word attack skills" were 7% to 10% greater than those for institutional and non-public school teachers, while the reverse was true for "appropriate social behavior," chosen by 6% more of the institutional and non-public school teachers.

For the speech and language impaired, "connected speech" and "speech fluency" were 24% and 13% greater for public than for institutional and non-public school teachers. It is likely that, for these latter three handicap categories, the non-public school students are in private schools rather than institutions, so that differences in seriousness of handicap are not at issue.

5. Curriculum Areas Prioritized by Chronological Age of Student

Table 12 (pages 40 and 41) presents curriculum area priorities broken out by chronological age categories of student.* These curriculum area priorities are presented separately for students aged 11 and younger and for those aged 12 and older. Most immediately evident is the fact that there is very little overlap between the priorities selected for the 11 and younger students and those for 12 and older students (note the starred curriculum areas).

The priorities selected for 11 and younger students are largely in the basic skills, and include areas both specific to the handicap and some more general areas -- such as "appropriate social behavior," "reading comprehension," "self-acceptance," and "concept development/generalization" -- which appear in several handicap categories. Noteworthy here is the fact that six out of the nine highest curriculum areas for the speech and language impaired are handicap-specific, while in all other handicap categories, only one or two out of seven or eight curriculum areas are handicap-specific.

Most striking among the 12 and older students across handicap categories is the presence of a career/vocational education cluster including "job preparation/skills development," "identification of personal interests and skills," "functioning in the community," "reasoning/decision making skills," "exploration of careers," "social interaction," and "use of money." Two or three of the curriculum areas in this cluster appear in each handicap category, with the exception of the speech and

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* For the severely handicapped category, students are characterized by interest level rather than chronological age.

TABLE 12 §

HIGHEST PRIORITY CURRICULUM AREAS BY CHRONOLOGICAL AGE CATEGORY OF STUDENTS

BLIND AND VISUALLY IMPAIRED

Number of Teacher Respondents = 685
Estimated Number of Target Students taught by Respondent Teacher Population = 16,113

CHRONOLOGICAL AGE: 11 and Younger

† Number of Teachers = 400 (58.4%)
Number of Target Students = 6,090

Curriculum Areas	Percentage of Teachers
* Concept Development/ Generalization	15.5
Appropriate Social Behavior	13.3
* Attending/Responding	11.3
* Visual Perception	10.0
* Word Attack Skills	9.8
* Listening Skills	9.3
* Fine Motor Development	7.8
Self-Acceptance	7.3

CHRONOLOGICAL AGE: 12 and Older

† Number of Teachers = 410 (59.9%)
Number of Target Students = 9,591

Curriculum Areas	Percentage of Teachers
* Job Preparation/Skills Development	16.1
Appropriate Social Behavior	12.2
* Identification of Personal Interests and Skills	11.2
* Functioning in the Community	9.0
Self-Acceptance	8.8
* Remedial Reading	7.8
* Exploration of Careers	7.3

DEAF AND HARD OF HEARING

Number of Teacher Respondents = 1,932
Estimated Number of Target Students taught by Respondent Teacher Population = 52,937

CHRONOLOGICAL AGE: 11 and Younger

† Number of Teachers = 1,010 (52.3%)
Number of Target Students = 20,920

Curriculum Areas	Percentage of Teachers
Reading Comprehension	31.8
Production of Phrases Sentences	18.0
Reading Vocabulary Development	14.8
* Concept Development/ Generalization	14.5
* Understanding Phrases and Sentences	11.6
Reasoning/Decison Making Skills	10.6
Appropriate Social Behavior	10.5

CHRONOLOGICAL AGE: 12 and Older

† Number of Teachers = 1,061 (54.9%)
Number of Target Students = 31,493

Curriculum Areas	Percentage of Teachers
Reading Comprehension	25.5
Reading Vocabulary Development	13.2
* Job Preparation/Skills Development	12.1
Reasoning/Decision Making Skills	12.0
Appropriate Social Behavior	11.0
* Grammar	9.0
* Functioning in the Community	8.6
* Self-Acceptance	8.2

MILDLY HANDICAPPED (EMR/LD)

Number of Teacher Respondents = 17,281
Estimated Number of Target Students taught by Respondent Teacher Population = 592,988

CHRONOLOGICAL AGE: 11 and Younger

† Number of Teachers = 9,844 (57.0%)
Number of Target Students = 288,949

Curriculum Areas	Percentage of Teachers
Work Attack Skills	23.5
Appropriate Social Behavior	19.3
Reading Comprehension	18.5
Self-Acceptance	18.5
Computation	16.0
* Auditory-Visual Integration	12.7
Remedial Reading	12.3

CHRONOLOGICAL AGE: 12 and Older

† Number of Teachers = 8,259 (47.8%)
Number of Target Students = 299,327

Curriculum Areas	Percentage of Teachers
Apropriate Social Behavior	22.7
Reading Comprehension	20.9
* Job Preparation/Skills Development	19.3
Self-Acceptance	16.4
Remedial Reading	14.1
Word Attack Skills	12.9
* Functioning in the Community	10.6
* Interpersonal Relations	10.5
Computation	10.0
* Reasoning/Decision Making Skills	9.6

§ Reference: NNA Statistical Report, Section I, Subsection H

† The number of teachers prioritizing materials needs in each age category serves as the base for percentage computations for curriculum areas selected in that category.

* Curriculum areas not shared across chronological ages within a given handicap category.

TABLE 12 (Continued) §

HIGHEST PRIORITY CURRICULUM AREAS BY CHRONOLOGICAL AGE CATEGORY OF STUDENTS

SPEECH AND LANGUAGE IMPAIRED

Number of Teacher Respondents = 3,864
Estimated Number of Target Students taught by Respondent Teacher Population = 180,158

CHRONOLOGICAL AGE: 11 and Younger

† Number of Teachers = 3,493 (90.4%)
Number of Target Students = 157,860

Curriculum Areas	Percentage of Teachers
Connected Speech	39.7
Production of Phrases, Sentences	29.8
Speech Fluency	21.2
* Auditory Comprehension	16.5
* Concept Development/ Generalization	16.0
* Production of Isolated Speech Sounds	14.8
* Production of Words	13.4
* Listening Skills	12.9
* Voice Production	11.0

CHRONOLOGICAL AGE: 12 and Older

† Number of Teachers = 920 (23.8%)
Number of Target Students = 21,191

Curriculum Areas	Percentage of Teachers
Speech Fluency	21.1
Connected Speech	18.5
Production of Phrases, Sentences	13.7

PHYSICALLY/ORTHOPEDICALLY HANDICAPPED

Number of Teacher Respondents = 763
Estimated Number of Target Students taught by Respondent Teacher Population = 20,136

CHRONOLOGICAL AGE: 11 and Younger

† Number of Teachers = 486 (63.7%)
Number of Target Students = 11,049

Curriculum Areas	Percentage of Teachers
* Attending/Responding	15.4
* Sensory Motor Integration	14.2
* Gross Motor Development	14.0
Self-Acceptance	11.3
* Reading Readiness	10.7
* Concept Development/ Generalization	10.3
Reading Comprehension	9.9
* Computation	9.3
* Fine Motor Development	9.1

CHRONOLOGICAL AGE: 12 and Older

† Number of Teachers = 350 (45.9%)
Number of Target Students = 8,842

Curriculum Areas	Percentage of Teachers
* Job Preparation/Skills Development	18.3
Self-Acceptance	12.3
Reading Comprehension	11.1
* Functioning in the Community	9.7
* Identification of Personal Interests and Skills	9.1
* Reasoning/Decision Making Skills	8.3

SEVERELY HANDICAPPED

Number of Teacher Respondents = 3,519
Estimated Number of Target Students taught by Respondent Teacher Population = 102,323

INTEREST LEVEL: Pre-Adolescent and Below

† Number of Teachers = 2,328 (66.2%)
Number of Target Students = 56,904

Curriculum Areas	Percentage of Teachers
Attending/Responding	27.0
Dressing, Grooming, and Personal Hygiene	16.5
Appropriate Response to Others	11.8
* Fine Motor Development	11.6
* Gross Motor Development	11.0
Appropriate Display of Emotions	9.3
* Basic Sensory Awareness	9.2

INTEREST LEVEL: Adolescent and Young Adult

† Number of Teachers = 1,412 (40.1%)
Number of Target Students = 44,012

Curriculum Areas	Percentage of Teachers
* Job Preparation/Skills Development	23.1
* Functioning in the Community	18.5
Dressing, Grooming, and Personal Hygiene	16.3
Appropriate Display of Emotions	14.0
Attending/Responding	10.4
* Social Interaction	10.3
Appropriate Response to Others	9.8
* Use of Money	8.4

§ Reference: NNA Statistical Report, Section I, Subsection H

† The number of teachers prioritizing materials needs in each age category serves as the base for percentage computations for curriculum areas selected in that category.

* Curriculum areas not shared across chronological ages within a given handicap category.

language impaired, for which the priorities are, as with the younger students, quite handicap-specific.

The remaining curriculum areas for the older students in each handicap category tend to be less handicap-specific (for example, "appropriate social behavior" and "self-acceptance"). Where they do include basic skills, they tend to be at lower percentages than are found for younger students -- "reading comprehension" for the deaf and hard of hearing, "word attack skills" and "computation" for the mildly handicapped group, and "attending/responding" for the severely handicapped group.

Even for the speech and language impaired, where basic skills characterize the priorities for older as well as younger students, "connected speech" and "production of phrases, sentences" are at substantially lower percentages for older students than for younger. This is not surprising, for some problems (e.g., articulation) tend to disappear with age and others are remedied through treatment. It should be noted, moreover, that this is the only handicap category with significantly fewer target students in the 12 and older group than in the 11 and younger group -- only about 12% of the total target student population for this handicap category appears in the 12 and older group. (The demographic data for teachers in this handicap category indicate that more than 2/3 of them describe their students as 11 and younger.)

Table 13 presents an analogous breakdown by student chronological age for supervisors and other special education personnel. These data corroborate the teacher responses, with an emphasis on language/cognitive development and reading for the 11 and younger students, and a career education/independent living skills cluster for students 12 and older.

TABLE 13§

HIGHEST PRIORITY CURRICULUM AREAS
BY CHRONOLOGICAL AGE CATEGORY OF STUDENTS
SELECTED BY SUPERVISORS AND OTHER SPECIAL EDUCATIONAL PERSONNEL

Number of Respondents = 2,015

Chronological Age: 11 and Younger † Number and Percentage of Respondents Selecting Materials Needs for this Age Category = 1,342 (66.6%)	Percentage of Respondents
* Expressive Language Development	17.0
Appropriate Social Behavior	16.2
* Cognitive Development	14.9
Self-Concept	13.7
* Receptive Language Development	11.1
Reading Comprehension and Appreciation	10.1

Chronological Age: 12 and Older † Number and Percentage of Respondents Selecting Materials Needs for this Age Category = 1,455 (72.2%)	
Appropriate Social Behavior	22.8
* Independent Living Skills	19.6
* Career Education	19.2
Self-Concept	12.3
* Functioning in Community	11.7
Reading Comprehension and Appreciation	10.6

§ Reference: NNA Statistical Report, Section I, Subsection H, Respondent Population 7: Supervisors and Other Special Education Personnel

† The number of respondents prioritizing materials needs in each age category serves as the base for percentage computations for curriculum areas selected in that category.

* Curriculum areas not shared across chronological age categories.

Curriculum Areas: Summary and Discussion

The observations to this point can be summarized as follows:

- 88% of all special education teachers surveyed, as well as 80% of all supervisors and other special education personnel, indicated a great or moderate need for new or improved media and materials -- the highest priority need cited by teachers in every handicap category as necessary to achieve their instructional objectives.

- Fifteen curriculum areas were selected by at least 6% of the total respondent teacher population as highest priorities for media and materials development. Foremost among these were "appropriate social behavior," "reading comprehension," "self-acceptance," and "word attack skills." With few differences, the curriculum areas selected by teachers were also prioritized by supervisors and other special education personnel.

- For the most part, this list of highest priority curriculum areas includes all of the highest priorities for each handicap category. For some very specific, and generally the most serious, problem areas within handicap categories, the highest priority curriculum areas are not included on this list.

- This list of highest priority curriculum areas includes all of the curriculum areas with the greatest numbers of target students as well as a few with relatively small numbers of target students.

- It is estimated that one out of every five special education students is represented in the NNA data, and that, projected nationally, the total market for educational materials development for the handicapped is in excess of 5 million students.

- The more severe the handicap (as judged by problem area), the more handicap-specific are the prioritized curriculum area needs.

- For less severe handicaps, the high priority curriculum areas tend to be not only quite general across handicap categories, but also quite closely related to the regular education curriculum.

- For the severely handicapped, the physically handicapped, and the blind and visually impaired, teachers in non-public schools and institutions tend to select handicap-specific curriculum areas as high priorities, presumably because they are dealing with the more serious handicaps. For the other handicap categories, there was virtually no difference between curriculum areas prioritized by public school and institutional and non-public school teachers.

- Priorities for children aged 11 and younger tend to be in the basic skills curriculum areas while those for students 12 and older are marked by a job preparation/vocational education cluster.

- The speech and language impaired category is unusual in that all priorities for this category, regardless of student problem area, age level, or educational setting, are quite handicap-specific or even problem-specific. For this group, there are virtually none of the more general curriculum areas which appear consistently in the other handicap categories.

Thus far, it is possible to conclude that about three dozen curriculum areas can satisfy the highest priority curriculum area needs, as determined by the following set of criteria:

(a) selected by the greatest percentage of teachers, whether in public or non-public schools or institutions

(b) needed for the greatest numbers of target students

(c) needed for students within all special problem areas

(d) needed for students at both older and younger chronological ages

These curriculum areas are presented in Table 14 on pages 46-49, together with a description of the relevant target student population(s), distilling the information from several tables already discussed.

However, this number of curriculum areas for development might be too large for the available resources and, if so, a choice will have to be made among the foregoing criteria, eliminating certain curriculum areas from the federal priorities. Clearly, with limited resources, the materials development priorities selected by the respondent teacher population must themselves be prioritized. In which curriculum areas, then, should materials development be focused? The answer to this question involves a compromise among the above criteria, and a review of the relevant NNA data provides some basis for the direction that compromise should take in the determination of federal goals and policy objectives.

TABLE 14

SUMMARY OF ALL MATERIALS DEVELOPMENT PRIORITIES

MATERIALS PRIORITIES ACROSS SEVERAL HANDICAP CATEGORIES

CURRICULUM AREA	Total Number of Target Students	MAJOR TARGET GROUP(S)			
		Handicap Category	Student N	Age Levels	Problem or Handicap Area
Appropriate Social Behavior	47,175	Blind and Visually Impaired	894	9-11	--
		Deaf and Hard of Hearing	2,116	9-14	Below average level of language functioning
		Mildly Handicapped	42,654	9-14	Educable mentally retarded Emotionally disturbed/ behavior disordered
Appropriate Response to Others	4,370	Severely Handicapped	4,370	all	Trainable mentally retarded Severely mentally retarded
Appropriate Display of Emotions	4,073	Severely Handicapped	4,073	all	Trainable mentally retarded
Reading Comprehension	52,499	Deaf and Hard of Hearing	5,631	5-14	Below average/average levels of language functioning
		Mildly Handicapped	44,291	9-14	Educable mentally retarded Specific learning disabled
		Physically/Orthopedically Handicapped	859	9-14	Primary communication modes: talking, writing
Self-Acceptance	43,376	Blind and Visually Impaired	506	9-14	--
		Mildly Handicapped	38,502	9-14	Educable mentally retarded Specific learning disabled Emotionally disturbed/ behavior disordered
		Physically/Orthopedically Handicapped	1,020	5-17	Primary communication mode: talking
Word Attack Skills	44,497	Mildly Handicapped	41,511	5-14	Specific learning disabled Educable mentally retarded
Connected Speech	37,269	Speech and Language Impaired	33,674	5-11	Language use Language comprehension and use Articulation Hearing impairment
Speech Fluency	6,675	Speech and Language Impaired	4,843	5-11	Stuttering
Computation	30,863	Mildly Handicapped	28,457	9-14	Educable mentally retarded Specific learning disabled
		Physically/Orthopedically Handicapped	565	--	Primary communication mode: writing
Remedial Reading	34,065	Mildly Handicapped	32,050	9-14	Specific learning disabled
Reasoning/Decision Making Skills	29,114	Deaf and Hard of Hearing	2,290	9-14	Below average, average, above average language levels
		Mildly Handicapped	21,329	9-14	Educable mentally retarded
Job Preparation/Skills Development	31,467	Blind and Visually Impaired	538	15-17	--
		Deaf and Hard of Hearing	1,620	15-17	Below average/average levels of language functioning
		Mildly Handicapped	23,599	15-17	Educable mentally retarded
		Severely Handicapped	4,717	adolescent/ young adult	Trainable mentally retarded
		Physically/Orthopedically Handicapped	661	12 and older	Primary communication mode: talking

TABLE 14 (Continued)

SUMMARY OF ALL MATERIALS DEVELOPMENT PRIORITIES

MATERIALS PRIORITIES ACROSS SEVERAL HANDICAP CATEGORIES

CURRICULUM AREA	Total Number of Target Students	MAJOR TARGET GROUP(S)			
		Handicap Category	Student N	Age Levels	Problem or Handicap Area
Concept Development/Generalization	28,257	Blind and Visually Impaired	687	5-11	—
		Deaf and Hard of Hearing	1,921	5-14	Below average language level
		Speech and Language Impaired	10,315	5-8	Language comprehension and use
		Mildly Handicapped	12,285	5-11	Specific learning disabled Educable mentally retarded
Attending/Responding	24,032	Blind and Visually Impaired	499	11 and younger	—
		Deaf and Hard of Hearing	625	11 and younger	Level of language functioning: none
		Physically/Orthopedically Handicapped	918	11 and younger	Primary communication mode: gesturing/signing
		Severely Handicapped	7,551	Pre-adolescent and below	Trainable mentally retarded Severely mentally retarded Multiply handicapped Severely and profoundly handicapped
		Mildly Handicapped	11,001	5-11	Specific learning disabled Educable mentally retarded
Vocabulary Development	24,996	Deaf and Hearing Impaired	2,628	9-14	Below average/average/above average levels of language functioning
		Mildly Handicapped	18,752	9-14	Specific learning disabled Educable mentally retarded
Interpersonal Relations	20,946	Mildly Handicapped	18,730	9-17	Emotionally disturbed/ behavior disordered
Social Interaction	3,215	Severely Handicapped	3,215	pre-adolescent through young adult	Trainable mentally retarded
Production of Phrases, Sentences	30,314	Deaf and Hard of Hearing	1,978	5-11	Below average language level
		Speech and Language Impaired	22,731	5-8	Language use Language comprehension and use Articulation Hearing impairment
Listening Skills	25,068	Blind and Visually Impaired	411	5-14	--
		Speech and Language Impaired	9,163	5-8	Language comprehension Auditory perception
		Mildly Handicapped	13,194	5-11	Specific learning disabled Educable mentally retarded
Functioning in the Community	19,653	Mildly Handicapped	13,251	12-17	Educable mentally retarded
		Severely Handicapped	4,218	adolescent/ young adult	Trainable mentally retarded

TABLE 14 (Continued)

SUMMARY OF ALL MATERIALS DEVELOPMENT PRIORITIES

MATERIALS PRIORITIES SPECIFIC TO SINGLE HANDICAP CATEGORIES

CURRICULUM AREA	MAJOR TARGET GROUP(S)			
	Handicap Category	Student N	Age Levels	Problem or Handicap Area
Identification of Personal Interests and Skills	Blind and Visually Impaired	425	12-17	—
Visual Perception	Blind and Visually Impaired	305	5-11	—
Sign Language	Deaf and Hard of Hearing	1,003	5-14	Level of language functioning: none
Auditory-Visual Integration	Mildly Handicapped	16,159	5-11	Specific learning disabled
Spelling	Mildly Handicapped	17,335	9-14	Specific learning disabled
Sensory Motor Integration	Physically/Orthopedically Handicapped	1,080	11 and younger	Primary communication modes: gesturing/signing, talking
Gross Motor Development	Physically/Orthopedically Handicapped	1,111	5-11	Primary communication mode: gesturing/signing
	Severely Handicapped	3,095	Infant through primary	Severely and profoundly handicapped Multiply handicapped
Feeding and Eating	Severely Handicapped	2,290	Primary and below	Severely and profoundly handicapped Severely mentally retarded Multiply handicapped
	Physically/Orthopedically Handicapped	336	—	Primary communication mode: gesturing/signing
Dressing, Grooming, and Personal Hygiene	Severely Handicapped	6,458	Pre-school through adolescent	Trainable mentally retarded Severely mentally retarded Severely and profoundly handicapped
Basic Sensory Awareness	Severely Handicapped	2,440	Infant	Severely and profoundly handicapped Severely mentally retarded
Toileting	Severely Handicapped	1,597	Pre-school/ primary	Severely and profoundly handicapped Severely mentally retarded
Fine Motor Development	Severely Handicapped	3,319	Pre-school/ primary	Severely mentally retarded
Understanding Phrases and Sentences	Speech and Language Impaired	3,716	5-8	Language comprehension
	Deaf and Hard of Hearing	1,179	5-11	Below average language level

TABLE 14 (Continued)

SUMMARY OF ALL MATERIALS DEVELOPMENT PRIORITIES

MATERIALS PRIORITIES SPECIFIC TO SINGLE HANDICAP CATEGORIES

CURRICULUM AREA	MAJOR TARGET GROUP(S)			
	Handicap Category	Student N	Age Levels	Problem or Handicap Area
Auditory Comprehension	Speech and Language Impaired	10,395	5-8	Language comprehension Hearing impairment Language comprehension and use
Voice Production	Speech and Language Impaired	2,201	5-11	Chronic hoarseness, weakness of voice
Production of Isolated Speech Sounds	Speech and Language Impaired	13,346	5-8	Articulation
Production of Words	Speech and Language Impaired	11,626	5-8	Articulation
Understanding Connected Speech	Speech and Language Impaired	5,175	5-8	Language comprehension Hearing impairment
Discrimination of Sounds	Speech and Language Impaired	7,198	5-8	Auditory perception
Auditory Sequential Memory	Speech and Language Impaired	3,820	5-11	Auditory perception
Auditory Perception	Speech and Language Impaired	2,826	5-8	Auditory perception

As pointed out earlier, media and materials needs prioritized by special education teachers can be regarded as falling into one of three categories. There is first a group with quite general applicability to students not just across several handicap categories within special education, but, in many cases, in regular education as well. These sixteen most general curriculum areas, displayed in the first portion of Table 14 (pages 46 and 47), are the highest priorities for materials development selected by special education teachers at large, whether in a public or non-public school or institutional setting.

Furthermore, they contain the top 7 selected by teachers of the blind; the top 6, by teachers of the deaf; the top 10, by teachers of the mildly handicapped; 3 of the top 5 chosen by teachers of physically/orthopedically handicapped; 6 of the top 10, by teachers of the severely handicapped; and 6 of the top 16, by teachers of the speech and language impaired. Except for this last category, and for a few quite handicap-specific curriculum area selections among teachers of the more seriously handicapped (physically/orthopedically and severely handicapped), this set represents the major choices within all handicap categories as well.

Moreover, this group comprises those curriculum areas with the largest potential target student populations within special education, covers the greatest needs of handicapped children at all age levels, and, except for the speech and language impaired and for a few special problem areas in the most severe handicap categories, reflects the highest priorities for students with many types of disabilities. As such, it would be impossible to ignore any curriculum area on this list.

The remainder of Table 14 consists of curriculum areas specific to a given handicap category. Some have moderate to large target student groups, but most are restricted to relatively infrequent, very specific types of disorders. Nonetheless, they do represent very real needs, chiefly for the most seriously handicapped categories.

And this brings up a major consideration in the prioritization of teacher-selected priorities -- one that runs head-on into a very difficult choice. Should materials development be concentrated in the curriculum areas with the greatest number of potential beneficiaries or those needed by students with the most severe problems? That is, should materials development effort be directed with an eye toward the severity of the handicap, providing first for those in the most extreme condition, rather than toward those who, with only a relatively mild handicap, could most easily be integrated in greater numbers into society-at-large?

It is most tempting, of course, to concentrate on the curriculum areas which serve the greatest numbers of students. However, this choice would be at the expense of the more seriously handicapped students in virtually all handicap categories -- the students who need the most specific help. To some extent the choice is dictated by law, where it is expressly ordered that the needs of the most severely handicapped must receive the highest priority in allocation of federal funds.

Yet federal funds cannot do the whole job, and the size of the market must certainly be a consideration if materials development, production, and dissemination are left to commercial publishers, and this last point will be an issue to which we must return.

It is premature at this point, however, to make any final decisions regarding selection of curriculum areas for prioritization, for not all criteria have been introduced. For example, it is obvious that a fair number of the total set of some three dozen priorities not only cover large numbers of special education target students across handicap categories, but also are shared to a great extent with regular education curriculum areas. Thus, because of market potential, commercial publishers may be willing to adapt a portion of the already available materials at relatively low cost, permitting the use of federal funds for development of the more specific materials needed by seriously handicapped learners in the low-incidence categories where the market is thin.

It is necessary, then, to look at formats in which teachers would like to see further development and it is to this subject that the discussion now turns.

B. FORMAT PREFERENCES

Table 15 presents the highest frequency currently used formats for each handicap category, over all curriculum areas. It will be noted that only about a half dozen or so formats are in wide use by any group of special education teachers and these are surprisingly uniform across handicap categories. High-ranked in every handicap category are manipulatives and print materials -- "games, toys, puzzles," "manipulative objects and tools," and "texts, reference, library books" (with obvious modifications for the blind and visually impaired). All but the blind and visually impaired and severely handicapped categories have high rankings for "workbooks, worktexts."

In addition, for the deaf and hard of hearing, mildly handicapped, and speech and language impaired categories, "maps, charts, pictures" ranks high.

TABLE 15 §

MATERIALS FORMATS CURRENTLY USED BY SPECIAL EDUCATION TEACHERS

BLIND AND VISUALLY IMPAIRED

† Number of Teacher Respondents = 685
Estimated Number of Target Students taught by Respondent Teacher Population = 16,113

Format	Percentage of Teachers
Cassette tapes of text/library books	40.2
Games, toys, puzzles	40.1
Large type texts/reference/library books	39.0
Braille texts/reference/library books	37.0
Manipulative objects and tools	36.1

DEAF AND HARD OF HEARING

† Number of Teacher Respondents = 1,932
Estimated Number of Target Students taught by Respondent Teacher Population = 52,937

Format	Percentage of Teachers
Textbooks/reference/library books	58.2
Maps, charts, pictures, flashcards	49.8
Games, toys, puzzles, flannelboard materials	46.4
Workbooks, worktexts	45.7 ++
Captioned films/captioned filmstrips	37.2 ++
Filmstrips, slides	35.6
Manipulative objects and tools	34.6

MILDLY HANDICAPPED (EMR/LD)

† Number of Teacher Respondents = 17,281
Estimated Number of Target Students taught by Respondent Teacher Population = 592,988

Format	Percentage of Teachers
Workbooks, worktexts	60.3 -
Textbooks/reference/library books	59.2 -
Games, toys, puzzles	51.2 -
Maps, charts, pictures, flashcards	42.9 -
Cassette and reel-to-reel tapes	37.1
Manipulative objects and tools	32.5

SPEECH AND LANGUAGE IMPAIRED

† Number of Teacher Respondents = 3,864
Estimated Number of Target Students taught by Respondent Teacher Population = 180,158

Format	Percentage of Teachers
Games, toys, puzzles	59.9 --
Textbooks/reference/library books	58.3 --
Maps, charts, pictures, flashcards	52.4 --
Cassette and reel-to-reel tapes	47.0 --
Workbooks, worktexts	43.9 ++
Manipulative objects and tools	40.2 -

PHYSICALLY/ORTHOPEDICALLY HANDICAPPED

† Number of Teacher Respondents = 763
Estimated Number of Target Students taught by Respondent Teacher Population = 20,136

Format	Percentage of Teachers
Textbooks/reference/library books	55.8 --
Games, toys, puzzles	46.7 -
Workbooks, worktexts	41.5
Manipulative objects and tools	40.6

SEVERELY HANDICAPPED

† Number of Teacher Respondents = 3,519
Estimated Number of Target Students taught by Respondent Teacher Population = 102,323

Format	Percentage of Teachers
Games, toys, puzzles	52.4 -
Manipulative objects and tools	50.5 -
Textbooks/reference/library books	39.0 -

Key

+ indicates an increase in preference
- indicates a decrease in preference
double sign indicates a large difference
single sign indicates a moderate difference
no sign indicates little or no difference

§ Reference: NNA Statistical Report, Section I, Subsection F, Question 2A

† The percentage of teachers selecting each type of format is based on the size of the respondent teacher group for the respective handicap category.

"Cassettes and reel-to-reel tapes" fills out the picture for the mildly handicapped and speech and language impaired, while the deaf add "captioned films/captioned filmstrips" and "filmstrips, slides."

Using the code system indicated at the bottom of Table 15, it can be seen that the currently used formats across all handicap categories, except the speech and language impaired, are also considered formats in which new or improved materials should be developed, and to about the same or a somewhat lower extent. Exceptions to this are the significant increases in preference for development of "captioned films/captioned filmstrips" for the deaf and hard of hearing, and of "workbooks, worktexts," both for this handicap category and for the speech and language impaired.

Again out of step with the general trend is the speech and language impaired category, which shows pronounced decreases in preference for development of the formats currently in use.

Table 16 displays the formats for which development is desired for each of the handicap categories, over all curriculum areas. Again, the uniformity across handicap categories is striking. "Workbooks, worktexts," "programmed, self-instructional materials," "texts, reference, library books," "multimedia kits," "magazines and specialized comic books," "games, toys, puzzles," and "manipulative objects and tools" constitute the most desired formats on each list. The speech and language impaired and mildly handicapped categories must be augmented by "cassette and reel-to-reel tapes," and the deaf and hard of hearing, by various film formats.

Even more striking than the uniformity of preferred formats across handicap categories, however, is the self-instructional nature of these preferred

TABLE 16 §

INSTRUCTIONAL MATERIALS FORMATS IN WHICH FUTURE DEVELOPMENT IS DESIRED

BLIND AND VISUALLY IMPAIRED

† Number of Teacher Respondents = 685
Estimated Number of Target Students taught by Respondent Teacher Population = 16,113

Format	Percentage of Teachers
Games, toys, puzzles	45.1
Cassette tapes of text/library books	44.0
Large type workbooks, worktexts	39.0
Braille workbooks, worktexts	36.9
Large type text/reference/library books	35.3
Manipulative objects and tools	35.2
Braille text/reference/library books	34.5
Multimedia kits	33.8
Large type magazines, specialized comics	33.0
Self-instructional/computer-assisted materials	30.4
Audio texts, records of library books	27.9
Braille magazines, specialized comics	27.4
Models	26.0

DEAF AND HARD OF HEARING

† Number of Teacher Respondents = 1,932
Estimated Number of Target Students taught by Respondent Teacher Population = 52,937

Format	Percentage of Teachers
Workbooks, worktexts	61.4
Textbooks/reference/library books	52.7
Programmed, self-instructional materials	52.1
Captioned films/captioned filmstrips	50.9
Games, toys, puzzles, flannelboard materials	47.6
Filmstrips, slides	46.7
Print/sign language materials	44.0
Magazines, specialized comic books	43.7
Films, filmloops	43.1
Multimedia kits	42.8
Maps, charts, pictures, flashcards	41.6
Manipulative objects and tools	36.7
Videotapes, closed-circuit TV	31.9
Computer-assisted instructional materials	27.4
Models	27.0
Sound filmstrips, sound slides	23.7
Audio flashcards	21.5
Cassette and reel-to-reel tapes	16.6
Records	16.3

MILDLY HANDICAPPED (EMR/LD)

† Number of Teacher Respondents = 17,281
Estimated Number of Target Students taught by Respondent Teacher Population = 592,988

Format	Percentage of Teachers
Workbooks, worktexts	55.4
Programmed, self-instructional materials	51.3
Multimedia kits	47.5
Textbooks/reference/library books	46.6
Magazines, specialized comic books	45.6
Games, toys, puzzles	41.3
Cassette and reel-to-reel tapes	40.6
Sound filmstrips, sound slides	39.2
Films, filmloops	38.5
Filmstrips, slides	36.5
Manipulative objects and tools	33.6
Records	32.7
Videotapes, closed-circuit TV	31.1
Audio flashcards	30.9
Maps, charts, pictures, flashcards	29.3
Captioned films/captioned filmstrips	28.8
Computer-assisted instructional materials	26.3
Models	24.5
Flannelboard materials	21.9

SPEECH AND LANGUAGE IMPAIRED

† Number of Teacher Respondents = 3,864
Estimated Number of Target Students taught by Respondent Teacher Population = 180,158

Format	Percentage of Teachers
Workbooks, worktexts	57.3
Programmed, self-instructional materials	47.1
Games, toys, puzzles	39.5
Cassette and reel-to-reel tapes	38.2
Textbooks/reference/library books	37.7
Multimedia kits	36.7
Magazines, specialized comic books	36.7
Manipulative objects and tools	32.4
Audio flashcards	32.1
Maps, charts, pictures, flashcards	30.9
Sound filmstrips, sound slides	30.2
Records	29.7
Flannelboard materials	28.1
Filmstrips, slides	26.9
Films, filmloops	25.3
Videotapes, closed-circuit TV	24.5
Models	21.7
Captioned films/captioned filmstrips	21.0
Computer-assisted instructional materials	20.6

PHYSICALLY/ORTHOPEDICALLY HANDICAPPED

† Number of Teacher Respondents = 763
Estimated Number of Target Students taught by Respondent Teacher Population = 20,136

Format	Percentage of Teachers
Workbooks, worktexts	42.9
Manipulative objects and tools	39.1
Textbooks/reference/library books	38.8
Programmed, self-instructional materials	38.7
Games, toys, puzzles	36.8
Multimedia kits	35.7
Magazines, specialized comic books	32.9
Films, filmloops	31.3
Sound filmstrips, sound slides	30.2
Cassette and reel-to-reel tapes	29.7
Filmstrips, slides	28.8
Records	26.7
Videotapes, closed-circuit TV	25.9
Maps, charts, pictures	22.9
Computer-assisted instructional materials	21.7
Audio flashcards	21.5
Models	20.1
Captioned films/captioned filmstrips	19.8
Flannelboard materials	18.6

SEVERELY HANDICAPPED

† Number of Teacher Respondents = 3,519
Estimated Number of Target Students taught by Respondent Teacher Population = 102,323

Format	Percentage of Teachers
Textbooks/reference/library books	44.2
Games, toys, puzzles	44.1
Manipulative objects and tools	43.9
Workbooks, worktexts	39.3
Multimedia kits	36.7
Filmstrips, slides	36.1
Films, filmloops	35.9
Sound films, sound slides	35.6
Cassette and reel-to-reel tapes	32.7
Magazines, specalized comic books	30.2
Maps, charts, pictures, flashcards	28.8
Videotapes, closed-circuit TV	28.7
Flannelboard materials	27.9
Self-instructional/computer-assisted materials	26.4
Models	26.1
Large type print materials	25.4
Audio flashcards	24.5
Captioned films/captioned filmstrips	19.4
Braille materials	9.4

§ Reference: NNA Statistical Report, Section I, Subsection F, Question 28

† The percentage of teachers selecting each type of format is based on the size of the respondent teacher group for the respective handicap category.

formats, most notably "workbooks, worktexts" and "programmed, self-instructional materials," but to a certain extent all the others mentioned above as well. One may easily infer from this observation that teachers are desirous of materials which the students can use solo, thus freeing teacher time for one-on-one teaching relationships.

Moreover, examination of the appropriate tables in the Statistical Report shows that format preferences do not differ by chronological age level or by problem area within handicap category. Even from one curriculum area to another, not invariably, of course, but quite consistently, the tendency toward these same materials formats is evident. As can be seen in Table 17, these formats are also those preferred by supervisors and other special education personnel. These preferences are very general indeed.

As mentioned before, the most preferred formats are largely the formats currently in use with three across-the-board notable additions. "Programmed, self-instructional materials," "magazines and specialized comics," and "multimedia kits" are all formats not currently in great use, but with widespread interest among teachers. Noteworthy also is the addition of "workbooks, worktexts" to the blind and visually impaired and severely handicapped lists, where they are not currently in wide use. This format ranks first in preference for all other handicap categories.

For all but the physically/orthopedically and the severely handicapped categories, "maps, charts, pictures" and "manipulative objects and tools" have dropped in preference as compared with current use. For these two handicap categories, "manipulative objects and tools" ranks very high as a preference, while "maps, charts, pictures" ranks low both as a currently used and as a preferred format.

TABLE 17§

FORMATS FOR MATERIALS DEVELOPMENT PREFERRED BY SUPERVISORS AND OTHER SPECIAL EDUCATION PERSONNEL

Number of Respondents = 2,015

Preferred Formats	Percentage of Respondents
Regular type workbooks, worktexts	44.0
Multimedia kits	42.2
Cassette tapes	40.4
Manipulative objects and tools	40.3
Regular type magazines, specialized comic books	38.2
Games, toys, puzzles	35.1
Programmed instructional texts	33.2
16mm films	31.9
Sound filmstrips	30.5
Regular type textbooks	29.6
Filmstrips	28.3
Regular type reference/library books	26.8
Maps, charts, pictures	24.9
Videotapes, closed-circuit TV	24.3
Models	23.0
-----	----
Materials for use in instructional machines	18.8
----	----
Computer-assisted instructional materials	9.6

§ Reference: NNA Statistical Report, Section I, Subsection D, Question 3, Respondent Population 7: Supervisors and Other Special Education Personnel

In addition to the three formats which have increased significantly from only moderate use to very high preference for development -- those just discussed -- there is yet another class of formats which registered significant gains, but these were from extremely low current usage to moderate preference level for future materials development. These formats are starred in Table 18, which depicts all those showing large increases from currently used to preferred formats. They are noteworthy because of both their nature and their prevalence across handicap categories. "Computer-assisted instructional materials" appears in every handicap category, as does "videotapes, closed-circuit TV" for all categories but the blind and visually impaired. "Multimedia kits" also appears in every category but already has moderate use in the mildly handicapped, physically/orthopedically handicapped, and speech and language impaired groups.

It is possible that the special appeal of these formats is simply their novelty. On the other hand, it may well be that these formats are in the forefront of a new trend toward more sophisticated instructional delivery systems, selected perhaps by the younger, more recently educated teachers. If so, it is an observation worth considering in long-range plans for materials development.

Format Preferences: Summary and Discussion

The discussion of formats preferred by teachers for materials development leads to the following conclusions:

- Teachers currently use only a half-dozen or so formats, the same formats for all handicap categories. Highest ranked in just about every category are manipulatives and print materials -- "games, toys, puzzles," "manipulative objects and tools," "text/reference/library books," and "workbooks, worktexts."

TABLE 18 §

MATERIALS FORMATS SHOWING GREATEST INCREASES FROM "CURRENTLY USING" TO "DESIRED FOR MATERIALS DEVELOPMENT"

BLIND AND VISUALLY IMPAIRED

† Number of Teacher Respondents = 685
Estimated Number of Target Students taught by Respondent Teacher Population = 12,113

Format	Preference Percentage	Current Use Percentage	Percentage Gain
* Multimedia kits	33.8	11.1	22.7
* Large type magazines, specialized comic books	33.0	10.4	22.6
* Self-instructional or computer-assisted materials	30.4	7.9	22.5
Braille workbooks, worktexts	36.9	17.4	19.5
* Braille magazines, specialized comic books	27.4	9.8	17.6
Large type workbooks, worktexts	39.0	24.2	14.8

DEAF AND HARD OF HEARING

† Number of Teacher Respondents = 1,932
Estimated Number of Target Students taught by Respondent Teacher Population = 52,937

Format	Preference Percentage	Current Use Percentage	Percentage Gain
Programmed, self-instructional materials	52.1	19.1	33.0
* Multimedia kits	42.8	10.2	32.6
Magazines, specialized comic books	43.7	21.3	22.4
* Computer-assisted instructional materials	27.4	5.2	22.2
* Videotapes, closed-circuit TV	31.9	12.0	19.9
Print/sign language materials	44.0	25.3	18.7
Workbooks, worktexts	61.4	45.7	15.7

MILDLY HANDICAPPED (EMR/LD)

† Number of Teacher Respondents = 17,281
Estimated Number of Target Students taught by Respondent Teacher Population = 592,988

Format	Preference Percentage	Current Use Percentage	Percentage Gain
Multimedia Kits	47.5	20.3	27.2
* Videotapes, closed-circuit TV	31.1	6.8	24.3
Programmed, self-instructional materials	51.3	27.3	24.0
* Computer-assisted instructional materials	26.3	3.0	23.3
Magazines, specialized comic books	45.6	24.6	21.0
Sound filmstrips, sound slides	39.2	21.0	18.2
* Captioned films/ captioned filmstrips	28.8	11.6	17.2

SPEECH AND LANGUAGE IMPAIRED

† Number of Teacher Respondents = 3,864
Estimated Number of Target Students taught by Respondent Teacher Population = 180,158

Format	Preference Percentage	Current Use Percentage	Percentage Gain
Programmed, self-instructional materials	47.1	16.5	30.6
* Sound filmstrips, sound slides	30.2	5.8	24.4
Multimedia kits	36.7	15.2	21.5
* Videotapes, closed-circuit TV	24.5	3.5	21.0
Magazines, specialized comic books	36.7	16.1	20.6
* Films, filmloops	25.3	5.8	19.5
* Computer-assisted instructional materials	20.6	1.3	19.3
* Filmstrips, slides	26.9	8.8	18.1
* Captioned films/ captioned filmstrips	21.0	4.2	16.8

PHYSICALLY/ORTHOPEDICALLY HANDICAPPED

† Number of Teacher Respondents = 767
Estimated Number of Target Students taught by Respondent Teacher Population = 20,136

Format	Preference Percentage	Current Use Percentage	Percentage Gain
Programmed, self-instructional materials	38.7	17.3	21.4
Multimedia kits	35.7	16.1	19.6
* Videotapes, closed-circuit TV	25.9	7.0	18.9
* Computer-assisted, instructional materials	21.7	3.1	18.6

SEVERELY HANDICAPPED

† Number of Teacher Respondents = 3,519
Estimated Number of Target Students taught by Respondent Teacher Population = 102,323

Format	Preference Percentage	Current Use Percentage	Percentage Gain
* Multimedia kits	36.7	13.5	23.2
* Videotapes, closed-circuit TV	28.7	8.7	20.0
* Self-instructional or computer-assisted materials	26.4	7.3	19.1
Sound filmstrips, sound slides	35.6	18.1	17.5
Workbooks, worktexts	39.3	22.1	17.2

§ Reference: NNA Statistical Report, Section I, Subsection F, Questions 2 A-B

† The percentage of teachers selecting each type of format is based on the size of the respondent teacher group for the respective handicap category.

- Teachers' preferred formats for materials development are generally the same as those they are currently using, with the addition of "programmed self-instructional materials," "multimedia kits," and "magazines and specialized comics."

- There is a very evident, very pronounced preference among teachers in all handicap categories for materials formats which are used independently by the student. These formats are also characterized by high interest level, novelty, provision for drill and practice.

- There is a very evident, though still low-profile trend toward more sophisticated instructional delivery systems -- "computer assisted instructional materials," "videotapes, closed-circuit TV" -- with the greatest increases in preference in all handicap categories.

A discussion of teachers' general format preferences is important for several reasons. First, regardless of other issues -- e.g., the effectiveness of particular formats, a topic with which this needs assessment does not deal -- teachers will use only the formats they like, so whatever is expected to reach the students must appeal to teachers first. The pressures and demands on a teacher's time are factors not to be ignored. Whether or not their preferences are the most effective instructional approaches, they are a reality that must be dealt with.

This does not mean, however, that research with other formats -- particularly computerized, individualized systems -- should not be pursued. The stereotype of resistance presently encountered to such "mechanized" teaching methods may be simply a function of the current group of teachers. But teachers' preferences can be changed by both education and experience. If such materials prove to be effective in pilot studies, acceptance of them can be achieved by incorporating them in the teacher training curriculum.

A decision to proceed with teachers' current format preferences may be an acceptable short-run answer to the need for materials, but it should not displace long-run research on more sophisticated and hopefully more effective formats. This is especially true since the mandate to develop individualized

educational programs is already in place, and there is little hope of making these programs effective without the resources made available by the micro-technology revolution. In addition to improving educational opportunities for mainstreamed handicapped children, microprocessors and other electronic systems may well provide regular education teachers with the means for individualizing instruction for all children.

C. MEDIA HARDWARE AND EQUIPMENT

To concentrate for the moment on the short-run requirements, it should be noted that teachers' current preferences for materials formats may be influenced by the media equipment and hardware available to them. Table 19 indicates what kinds of hardware and equipment teachers currently have available as well as what they do not have available but would like to have.

It is clear that ditto machines/mimeographs, cassette tape recorders, record players, and overhead projectors are widely available to teachers at present, along with some specialized equipment for the blind and visually impaired and for the deaf and hard of hearing.

The availability of equipment and hardware is an important consideration because it bears on the length of time required to utilize new materials. Instructional materials needs will certainly not disappear overnight, but time is nonetheless a factor. Satisfaction of short-run needs must proceed with materials formats which are relatively easily developed and distributed and for which the necessary hardware and equipment are already in place.

It can be concluded then, that for the formats most frequently chosen for materials development, what equipment or hardware is necessary for their effective use is already easily accessible to teachers.

TABLE 19 §

MEDIA HARDWARE AND EQUIPMENT GENERALLY AVAILABLE TO SPECIAL EDUCATION TEACHERS

	BLIND	DEAF	MILD	SPEECH	PHYS/ORTHO	SEVERE
† Number of Teacher Respondents	685	1,932	17,281	3,864	763	3,519
Estimated Number of Target Students taught by Respondents	16,113	52,937	592,988	180,158	20,136	102,323
	Percent	Percent	Percent	Percent	Percent	Percent
Ditto machine/mimeograph	75.6	90.3	92.1	89.9	86.6	80.4
Cassette tape recorder	91.1	60.6	90.7	89.8	87.3	82.7
Record player	86.6	64.6	86.8	60.0	86.8	90.5
Overhead projector	-	86.4	78.5	-	72.2	64.0
Filmstrip, slide projector	66.7	66.2	-	-	-	-
Large type typewriter	71.8	-	-	-	-	-
Braille writer	84.5	-	-	-	-	-
Film projector	65.1	-	-	-	-	-
Reel-to-reel tape recorder	63.5	-	-	-	-	-
Lamination equipment	-	73.0	-	-	-	-
16mm film projector	-	66.9	-	-	-	-

MEDIA HARDWARE AND EQUIPMENT DESIRED BY BUT NOT CURRENTLY AVAILABLE TO SPECIAL EDUCATION TEACHERS

	BLIND	DEAF	MILD	SPEECH	PHYS/ORTHO	SEVERE
† Number of Teacher Respondents	685	1,932	17,281	3,864	763	3,519
Estimated Number of Target Students taught by Respondents	16,113	52,937	592,988	180,158	20,136	102,323
	Percent	Percent	Percent	Percent	Percent	Percent
Child-use instructional machines	40.1	38.1	51.9	48.1	39.2	41.7
Computer for instructional use	32.6	32.9	38.3	21.5	29.2	24.8
Videotaping equipment	26.1	-	32.4	33.5	27.7	28.0
Closed-circuit TV	24.8	-	29.6	19.9	25.2	27.1
Printing facilities	-	-	32.3	25.5	28.7	25.0
Still photographic equipment	-	-	29.3	-	26.7	26.5
Speech compressor	27.2	-	-	-	-	-
Phonic mirror	-	-	-	49.4	-	-

§ Reference: NNA Statistical Report, Section II, Subsection B, Question 5, (Question 6 for Teachers of the Blind and Visually Impaired)

† The percentage of teachers selecting each type of equipment is based on the size of the respondent teacher group for the respective handicap category.

More interesting, however, are the choices of hardware and equipment to which teachers would like to have access -- not just because of the uniformity across handicap categories, but also because of the striking congruence with the materials formats in which teachers would most like to see development proceed. The prevalence of desire for access to child-use instructional machines, computers for instructional use, videotaping equipment, and closed-circuit TV corroborates the evidence both of a desire for independently used materials formats and of the low-profile trend toward more sophisticated instructional delivery systems discussed earlier.

D. INADEQUACIES IN CURRENTLY AVAILABLE MATERIALS

The discussion now moves to a study of the inadequacies perceived by teachers in existing materials -- why new or improved materials are needed, and what is wrong with materials presently used by special education teachers.

As can be seen from Table 20, teachers' primary reason for needing materials development is that there is not enough variety in available materials. This lack of variety is cited across all handicap categories, though for the mildly handicapped, physically/orthopedically handicapped, and speech and language impaired, cost is also something of a factor.

The major inadequacies of currently available materials, also presented in Table 20, are classified by content, use, and physical properties. Foremost among considerations of content is the failure to provide sufficient repetition/reinforcement of the material, followed by inappropriateness with regard to interest level, language/vocabulary level, students' life experiences, and concept level. Though there is some differential ordering within handicap categories, these inadequacies of content are the most prevalent for all.

TABLE 20 §

INADEQUACIES OF CURRENTLY AVAILABLE MATERIALS AGGREGATED OVER ALL PRIORITIZED CURRICULUM AREAS

	ALL HANDICAPS	BLIND	DEAF	MILD	SPEECH	PHYS/ ORTHO	SEVERE
† Number of Teacher Respondents	28,044	685	1,932	17,281	3,864	763	3,519
Estimated Number of Target Students taught by Respondent Population	964,655	16,113	52,937	592,988	180,158	20,136	102,323
PRIMARY REASON FOR MEDIA AND MATERIALS DEVELOPMENT	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Not enough variety in available materials	37.4	42.4	41.7	35.4	41.1	36.5	39.7
Available materials too costly	20.6	-	-	23.7	20.6	20.8	-
Available materials poor in quality	11.2	-	-	-	-	-	-
Don't know of any materials available	10.4	-	-	-	-	-	-
CHIEF INADEQUACIES OF CURRENTLY AVAILABLE MEDIA AND MATERIALS							
Content							
Not enough repetition, reinforcement	43.6	30.4	45.4	47.6	35.4	35.1	35.9
Interest level inappropriate	38.6	28.2	35.7	41.3	31.5	31.2	38.1
Language/vocabulary level inappropriate	33.9	20.7	51.9	34.5	27.1	24.6	33.2
Inappropriate for students' life experiences	31.8	28.9	28.4	33.4	28.5	30.6	30.1
Concept level inappropriate	23.0	21.2	28.1	22.2	-	-	30.0
Use							
Students cannot use materials independently	40.7	33.1	39.8	43.1	36.6	35.3	36.1
Not adaptable for a variety of disabilities	31.0	33.7	26.4	31.0	27.0	41.9	35.0
Doesn't suggest alternative learning strategies	30.1	23.8	25.3	31.2	32.0	25.9	27.7
Needs too much supplementation by teacher	29.2	22.7	34.2	31.8	22.5	23.3	23.1
Doesn't provide for different entry levels	28.1	22.0	28.4	29.5	24.6	23.7	26.9
No ongoing evaluation of students' progress	24.8	-	22.1	26.8	26.9	-	-
Not suitable for parent-directed child use at home	23.7	-	-	23.7	35.6	-	-
Physical Properties							
Low child appeal	33.6	25.1	27.1	37.0	30.3	24.6	27.6
Poor durability	15.4	-	-	-	17.4	-	16.9
Poor visual quality	12.0	22.2	-	-	-	-	-

§ Reference: NNA Statistical Report, Section I, Subsection F, Questions 3-4, Respondent Population 8: Teachers in Special Education

† The percentage of teachers citing each kind of inadequacy is based on the size of the respondent teacher population for the respective handicap category.

Highest among inadequacies with respect to the use of special education media and materials is their inability to be used independently by the students, which, supported by the widespread complaint that materials need too much supplementation by teachers, is of particular interest, given the previously discussed preference for student self-use materials formats.

Lack of versatility in materials is obviously a major complaint of teachers, who cite as inadequacies: not adaptable for a variety of disabilities, doesn't suggest alternative learning strategies, and doesn't provide for different entry levels.

All of the above inadequacies with respect to the use of media and materials are cited repeatedly across handicap categories. In addition, the lack of an evaluative component is a major defect in materials for the deaf and hard of hearing, the mildly handicapped, and the speech and language impaired, while teachers in the latter two groups also complain about the lack of suitability for home use.

Among the physical properties of materials, only low child appeal is widely cited as a major inadequacy, with poor visual quality a relatively major complaint among the teachers of the blind and visually impaired, and poor durability a secondary factor among teachers of the speech and language impaired and severely handicapped.

The inadequacies cited by supervisors and other special educational personnel are presented in Table 21. For the most part, they confirm the findings for teachers, with emphasis on inappropriate concept, language, and interest levels, lack of versatility, and low child appeal.

TABLE 21 §

INADEQUACIES OF CURRENTLY USED MATERIALS
PERCEIVED BY SUPERVISORS AND OTHER SPECIAL EDUCATION PERSONNEL

Number of Respondents = 2,015

	Percentage of Respondents
Inappropriate for students' life experiences	34.1
Available materials too costly	32.7
Interest level inappropriate	32.3
Language/vocabulary level inappropriate	29.8
Not suitable for use with a wide range of students	29.5
Low child appeal	24.5
Concept level inappropriate	24.0
Not suitable for parent-directed child use at home	22.3
No provision for ongoing evaluation of student progress	22.1
Poor sequencing of learning components	20.5
Requires too much teacher training or supplementation	18.1

§ Reference: NNA Statistical Report, Section I, Subsection F, Question 2, Respondent Population 7: Supervisors and Other Special Education Personnel

These inadequacies in currently available materials may account in part for the quite high preference for magazines and specialized comic books as formats for future materials development, discussed earlier. Compared with current usage, preference for this format more than doubles among the deaf and hard of hearing, mildly handicapped, and speech and language impaired, and almost triples for the blind and visually impaired. One may assume that magazines and specialized comic books provide the requisite child appeal -- maintaining their interest, yet accommodating the low vocabulary and conceptual levels at which these students operate.

Corroborating the information in Tables 20 and 21 are the factors which most influenced respondents' selection of materials, presented in Table 22. Most important among the product factors here are those related to content -- relevance to student disability, interest, language, and concept levels -- as well as the versatility to be used by a wide range of students, and the ever-recurring provision for independent student use. And, again, these product factors are most important across all handicap categories, though for the physically/orthopedically and severely handicapped, the sensory modes and physical characteristics of the product also make an impact on the decision.

Among factors other than those dealing with the product itself, cost is the only major consideration, important in all handicap categories, but less so for the deaf and hard of hearing than for the others.

Clearly, then, if newly developed materials are to be more successful than presently existing ones, they must provide sufficient reinforcement and/or repetition, be appropriate for student interests and capabilities, and appeal to the child. Moreover, they must be versatile and able to be used independently by the child without too much supplementation by the teacher.

TABLE 22 §

FACTORS INFLUENCING RESPONDENTS' SELECTION OF MATE

IN SELECTING NEW INSTRUCTIONAL MATERIALS DURING THE CURRENT SCHOOL YEAR, WHICH FACTORS FROM THE LIST BELO

	TOTAL TEACHERS		DEAF		MILD	
Number of Respondents	27,359		1,932		17,281	
PRODUCT FACTORS	**Percent**	**Rank**	**Percent**	**Rank**	**Percent**	**Rank**
Relevance of content to students' disability	61.8	1	47.9	3	62.5	1
Interest level of product	53.1	2	48.1	2	58.4	2
Language level of product	37.6	4	63.5	1	34.1	5
Provision for use by wide range of students	31.1	5	-		31.0	6
Concept level of product	30.6	6	41.1	4	28.5	7
Provision for independent student use	29.6	7	25.8	6	36.6	4
Sensory modes of product	20.1	8	-		-	
Physical characteristics (durability, safety)	16.2	9	-		-	
OTHER FACTORS						
Extent of funds available	49.6	3	36.1	5	52.2	3

§ Reference: NNS Statistical Report, Section II, Subsection B, Question 7
Note: This question did not appear on the questionnaire for Teachers of the Blind and Visu

IALS

HAVE MOST INFLUENCED YOUR CHOICE?

SPEECH 3,864		PHYS/ORTHO 763		SEVERE 3,519		SUPERVISORS/ OTHERS 2,015	
Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank
71.4	1	49.4	1	57.9	1	64.0	1
39.9	5	43.1	3	46.1	2	49.1	2
54.0	2	-		25.7	8	28.9	4
42.0	4	31.6	4	26.0	7	26.1	7
29.4	6	30.7	6	36.5	4	28.0	5
-		31.1	5	-		-	
-		25.6	8	33.1	6	-	
-		27.5	7	34.8	5	-	
53.4	3	46.1	2	41.3	3	45.6	3

lly Impaired.

Media and Materials Development: Recommendations

The point has now been reached where consideration of priority-setting and allocation of resources for development among the three dozen or so curriculum areas chosen by teachers is warranted. Examination of the NNA data leads to three major recommendations for the allocation of resources to special education materials development.

1. It is suggested that commercial publishers of educational media and materials be given strongest encouragement to assume responsibility for materials development, perhaps with some of the technical groundwork subsidized by federal funds, for the 16 curriculum areas listed in Table 14 (pages 46-47), which span several handicap categories and also overlap substantially with the regular education curriculum. This seems like a natural choice because these curriculum areas offer market potential, and a significant assortment of materials relevant to these curriculum areas is already available. Moreover, the formats teachers prefer are chiefly consumables (paper and pencil materials), with need for continuous replenishment.

   In addition, it is recommended that these curriculum areas, since they span several handicap categories, be pursued generically, rather than in a category-specific fashion. This is especially feasible since teachers prefer basically the same materials formats. This general development approach could take the form of multimedia kits with modular components from which teachers can select and adapt for individualized student programs. Without this versatility, it is likely that no set of materials produced now will continue to be satisfactory as more and more

teachers are faced with the prospect of tailoring their students' programs to particular, and in some cases, virtually unique needs. In other words, though the curriculum areas are quite general and the teachers format preferences are quite uniform, it would be presumptuous to assume that any single materials development path, no matter how efficiently and cheaply it can be implemented, will produce materials which are effective for all students in the target group.

Interest among commercial producers can perhaps be stimulated through workshops developed around the NNA data base, thus speeding up development and telescoping the lead time for materials production. It is strongly advised, however, that neither BEH nor commercial producers proceed with materials development without more in-depth follow-up of what is needed -- through teacher interviews, group discussions, etc. This study has indicated some things to avoid, and by implication, what to pursue, but it should not be considered a set of specifications for materials development. Furthermore, it is evident that the production of such materials leaves the job far from finished, for teachers will have to be instructed in how to select, adapt, combine, and coordinate their use -- a topic to be treated later -- which makes it even more important for them to play a major role in development.

2. The remainder of the curriculum areas in Table 14 (pages 48-49), those specific to (mostly) low-incidence, very serious problem areas, cannot be expected to attract the attention of commercial materials producers. Some of these areas will require elaborate orthopedic or high-technology equipment, the kind of thing that is beyond the scope of publishers of

educational materials. For example, 40% or more of the teachers of the physically/orthopedically handicapped report that adaptive furniture, communication devices, wheelchair trays/lap boards, and writing aids all need major design improvements.

However, it is quite likely that such equipment will have more general use for the handicapped individual than simply assisting in the mastery of certain curricular skills. Indeed, a look at the curriculum areas themselves for these handicap categories shows a concentration on basic "survival" skills, much more fundamental than those usually considered educational. It is interesting to note that format preferences for teachers in those handicap categories consist chiefly of manipulative objects and tools, and, to a somewhat lesser extent, games, toys, and puzzles.

It may be that certain types of equipment can be adapted to accommodate these particular needs, and an exploration of this possibility with commercial producers of specialized medical equipment should certainly not be ignored. It may also be possible to pursue this kind of media and hardware development in conjunction with other federal agencies involved with national health problems. Otherwise, it will simply be necessary, if the need is to be filled, to make a long-run capital investment in the development and production of the required equipment.

For other areas, it may be necessary in many cases for teachers to produce their own materials. Teachers do a fair amount of this already and it may be that the best way to satisfy the needs of <u>all</u> students is to develop materials where it is feasible to do so and to train teachers to adapt and/or develop their own for cases where there is only

scattered occurrence nation-wide. It is recommended here that this position should get strong recognition in federal policy, and this topic is one that shall be explored more fully in the next section.

3. In view of what was described earlier as a pronounced but low profile trend toward more sophisticated, computerized equipment, it is strongly recommended that BEH consider very seriously a long-run investment in the development of appropriate hardware/software interface systems capable of providing the individualized instructional programs needed by handicapped students and required by law. Such systems can tailor not only the content of the instructional program, but also the degree of repetition necessary to learn without becoming boring. Moreover, they are appealing to the student, and reinforcement (feedback) can be sufficient to hold interest without the teacher's immediate presence, advantages which, it will be recalled from the earlier discussion, are essential to effective materials use.

It must be recognized that major developmental work on such software systems is already underway and microtechnology is currently at a point where widespread hardware installations are within, or are rapidly approaching, feasibility for local school district budgets.

It will be recalled that money to buy instructional materials was a major need of special education teachers (Table 6) and of supervisors and other special education personnel (Table 7). However, it should also be noted that the most widely used materials formats are of the paper and pencil variety, the sort of consumables that require a continuing cash outlay just to maintain a status quo educational program.

If BEH resources are turned to the kind of development that can reduce such consumables spending, then savings at the school district level can be invested instead in the kind of hardware that promises a better and more effective educational program. In short, a judicious long-run investment of capital at the federal level can do for local districts what outright grants and gifts simply cannot.

As a first step in such a program, it is recommended that BEH try to project a time frame for what, in the long run, is inevitable anyway. What is needed is a study of the current status and future direction of computerized instructional systems. Where will the hardware and the software be in five years? In ten years? Before BEH makes decisions which can have significant impact on both short- and long-run spending policy, there needs to be some feeling for how far away the "long-run" is. A properly conducted study with timely reporting of results is essential to determine the appropriate balance of funds to allocate to short-run holding actions and long-run solutions.

II. TEACHER-MADE MATERIALS

Many teachers, in unsolicited notes accompanying their returned questionnaires, pointed out that the commercial market can never be expected to satisfy all their needs in the most efficient and effective way. The point was made again, this time overwhelmingly, as 82% of teachers surveyed cited the need for time, resources, and training to develop their own materials as critical to the fulfillment of their instructional objectives -- second only, in fact, to the need for commercially produced materials (Table 6).

As is evident from Table 23, teachers in all handicap categories (except the blind and visually impaired, who were not asked this question) report the current use of a substantial amount of teacher-made materials. Over half (58.1%) of all teachers indicate that, of the materials they use, at least 25% are teacher-made. This trend is especially strong among teachers of the deaf and hard of hearing, where 74.5% of the teachers use significant amounts of teacher-made materials. It is somewhat weaker among teachers of the physically/orthopedically handicapped, where the percentage of high users of teacher-made materials drops to 45.7%, presumably because much of their orthopedic equipment is too elaborate for teacher duplication or re-engineering.

Table 23 also presents evidence of materials production activity. Among special education teachers, 28.6% indicate that they use the school site for materials production, and half that many teachers use the district/county office for this purpose. Supervisors and other special education personnel report that facilities for materials production at both the school and district/county levels should be increased. Of these respondents, 31% report

TABLE 23

USE OF TEACHER-MADE MATERIALS

OF THE MEDIA AND MATERIALS YOU HAVE USED THIS SCHOOL YEAR, WHAT PERCENTAGE IS TEACHER MADE? §

	ALL HANDICAPS	DEAF	MILD	SPEECH	PHYS/ORTHO	SEVERE
Number of Respondents	27,359	1,932	17,281	3,864	763	3,519
	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers
Over 50%	25.4	43.3	20.1	36.1	17.8	31.5
26 - 50%	32.7	31.2	34.0	30.8	27.9	30.2
10 - 25%	26.6	15.9	29.8	21.4	30.8	21.8
less than 10%	12.7	7.2	13.5	10.0	19.5	13.4

§ Reference: NNA Statistical Report, Section II, Subsection B
Question 6 for Teachers of the Deaf, Mildly Handicapped, and Speech and Language Impaired
Question 8 for Teachers of Physically/Orthopedically Handicapped and Severely Handicapped
Note: This question did not appear on the questionnaire form for Teachers of the Blind.

EVIDENCE OF MATERIALS PRODUCTION ACTIVITY

Number of Teachers = 9,522
Number of Supervisors/Others = 649

	Percentage of Teachers Reporting Use
Facilities for Materials Production§	
At School Site	28.6
At District/County Office	14.3

	Percentage of Supervisors/Others Reporting	
	Currently Available	Should be Available
Facilities for Materials Production†		
At School Site	31.0	44.2
At District/ County Office	22.7	33.4

§ Reference: NNA Statistical Report, Section IV, Subsection B, Question 10, Respondent Population 8: Teachers in Special Education

† Reference: NNA Statistical Report, Section IV, Subsection B, Questions 6A-B, Respondent Population 7: Supervisors and Other Special Education Personnel

current materials production activity at the school site, but 44.2% felt that such activity should be available. About one-third of these respondents indicate that the district/county office should be available for materials production activity, with only 22.7% responding that it currently is.

Moreover, in Table 24, teachers indicate that designing and adapting media and materials are skills critical to their job, ranking among the top 6 out of a list of 47 skills. Less than half of these teachers, however, had any formal training in materials design prior to beginning their teaching careers. From that same list of 47 skills, designing/adapting media and materials is cited as a major training need, ranking from 2nd to 12th in priority.

The two best sources of future training are perceived by teachers as college faculty and experience on the job, with somewhat greater emphasis on the latter. In addition, about half of the teachers feel that self-instructional training kits would be of great value for adapting/designing materials, with another third indicating that they would be at least of some value. This opinion was shared by supervisors, both for themselves and for the teachers with whom they work, though supervisors felt that such kits would be more valuable to teachers for adapting than for designing media and materials (Table 24).

Even skills in constructing materials (making reproduction masters, audio visual materials, etc.) were considered by anywhere from 37% to 56% of special education teachers to be critical to their jobs, ranking in the top half of the 47 item list (Table 24). While not so often selected as the design skills, the rated importance of these mechanical skills indicates a substantial amount of materials production by teachers. And, as with the design skills, only about a third of the teachers received training in these skills

TABLE 24 §

TRAINING IN TEACHER-MADE MATERIALS

SPECIAL EDUCATION TEACHERS

Number of Respondents = 9,432

HOW TO DESIGN/ADAPT MEDIA/MATERIALS ACCORDING TO:	WHICH OF THESE SKILLS ARE CRITICAL TO YOUR JOB		MAJOR SOURCE OF PRIOR TRAINING	
	Percent	Rank/47	College Percent	Self-trained Percent
Pupil Functional Level	81.9	2	40.8	37.2
Specific Learning Objectives	81.1	3	47.4	24.9
Pupil Interest Level	69.2	6	25.7	54.5
HOW TO MAKE:				
Masters for Reproduction Units	56.1	13	29.8	47.0
Audio Visual Materials	47.1	19	39.8	29.5
Graphics (Charts, Flashcards)	45.3	21	30.3	52.3
Tactile Materials	42.1	23	30.7	41.3
Audio Materials	37.0	26	35.0	37.1

SUPERVISORS AND OTHER SPECIAL EDUCATION PERSONNEL

Number of Respondents = 690

HOW TO DESIGN/ADAPT MEDIA/MATERIALS ACCORDING TO:	WHICH OF THESE SKILLS ARE CRITICAL TO YOUR JOB		MAJOR SOURCE OF PRIOR TRAINING	
	Percent	Rank/47	College Percent	Self-trained Percent
Pupil Functional Level	70.7	4	33.4	38.9
Specific Learning Objectives	75.2	3	35.6	29.3
Pupil Interest Level	57.5	10	23.7	48.9

§ Reference: NNA Statistical Report, Section III, Subsection B
Questions 6, 7, 8, 9 for Teachers in Special Education
Questions 10, 11, 12B, 13 for Supervisors and Other Special Education Personnel

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HOW VALUABLE WOULD SELF INSTRUCTIONAL TRAINING KITS BE FOR YOUR TRAINING NEEDS IN EACH OF THE FOLLOWING SKILLS?†

	Percentage of Teachers		Percentage of
	Great Value	Some Value	Great Value
Adapting Media/Materials	49.4	39.2	46.5
Designing Media/Materials	48.4	36.1	40.6

† Reference: NNA Statistical Report, Section III, Subsection B,
Question 5 for Teachers in Special Education
Questions 8-9 for Supervisors and Other Special Education Personnel

HIGHEST PRIORITIES FOR FUTURE TRAINING		BEST SOURCE FOR FUTURE TRAINING	
Percent	Rank/47	College Faculty Percent	Experience on Job Percent
26.6	8	21.8	29.6
37.8	2	26.6	17.6
16.9	12	12.8	40.0
4.2	38	-	-
8.8	23	-	-
3.7	41	-	-
5.8	32	-	-
4.1	40	-	-

HIGHEST PRIORITIES FOR FUTURE TRAINING		BEST SOURCE FOR FUTURE TRAINING	
Percent	Rank/47	College Faculty Percent	Experience on Job Percent
17.0	10	20.5	27.4
32.3	2	26.0	16.6
-	-	-	-

Supervisors	Percentage of Supervisors Indicating for Teachers	
Some Value	Great Value	Some Value
42.0	52.3	37.8
39.7	39.4	47.2

in college. They rank very low in future training priorities, however, possibly because teachers consider themselves adequately trained, or because there are other, more glaring deficiencies that have higher priority.

Teacher-Made Materials: Summary and Discussion

Though this study was not specifically focused on teacher-made materials, the following conclusions are evident from the data.

- About 82% of all teachers surveyed indicated a great or moderate need for additional resources, time, and training to develop their own materials, and over half of the teachers indicated that more than 25% of their materials are teacher-made.
- Teachers of the deaf and hard of hearing are especially high users and makers of teacher-made materials.
- More than half of all teachers surveyed have had no formal training in materials development and have learned what they know on the job.
- Teachers perceive both college faculty and experience on the job, with somewhat stronger emphasis on the latter, as the best sources of future training in materials design and adaptation.
- Most teachers and supervisors consider self-instructional kits to be of value for training in the design and adaptation of materials.
- Teachers indicate that materials construction skills are critical to their jobs, but rank them low as future training priorities.

Special education teachers see teacher-made instructional materials as playing an important role in the education of the handicapped. Apparently, such materials serve the purposes of duplicating those existing commercial materials which are beyond the classroom budget, and filling a need not currently met by commercial materials. Teacher-made materials permit tailoring of the learning process to specific and possibly unique educational problems of the learner. This is especially important in cases where demand for such items is not sufficient on a national basis to make commercial manufacture profitable.

Teachers appear to recognize the fact that commercial developers are unlikely to produce many materials for low-incidence and/or highly specialized needs because of lack of profit incentive. The fact that teachers place such a high priority on the need for time and resources to develop their own materials indicates both the expectation that this situation will continue and the increasing demand for individualized instruction for their students. This reemphasizes the point made earlier with respect to lack of variety, versatility, and relevance as the major inadequacies of currently available materials.

However, it is worth remarking that lack of profit incentive as a marketing consideration is appropriate only for materials as they are conceived of presently -- fixed by content and format (e.g., printed materials, games, toys, objects, etc.). There is a huge potential market for instructional software/hardware which can produce the flexibility and individuality needed to customize materials to the learner. Thus, one should regard any emphasis on teacher-produced materials as a short-run interim policy objective, and not as a real solution to the individualization problem.

Teacher-Made Materials: Recommendations

1. It is clear that, for the short run, a high priority must be given to increase resource support for teacher-made materials. Financial support, possibly through grants or competitions, would provide an incentive for teachers to produce effective materials. But released time and appropriate training, perhaps through workshops run either by local college faculty or by innovative teachers, are essential.

2. Instructional materials made by one teacher may have potential utility for many other handicapped students. It would be useful to establish a clearing house for such existing teacher-made materials -- to find out what materials exist, to publicize them, and to provide demonstrations and workshops in their duplication and use.

3. For the long run, it is suggested that teacher training programs be encouraged to emphasize materials design skills so that teachers are better prepared in this critical area when they begin their careers. When computerized instructional software and equipment become available, these design skills courses can be used to train teachers in their use.

III. PARENT-DIRECTED CHILD-USE MATERIALS

The current trend toward increasing parental involvement in the education of their children has taken many forms -- from being aware of the school program to actively participating in the educational process by working with the child at home to reinforce the instructional program. Though not specifically focused on this topic, the NNA provides information on both the availability of parent-directed child-use materials and teachers' assessments of their training to assist parents in the use of such materials. This study does not address the larger questions of how involved parents should be or the feasibility of extensive parent involvement within the present educational system.

As indicated in Table 6, 73.2% of the special education teachers responding to the NNA reported either a great (48%) or moderate (26%) need for new or improved parent-directed materials for home use, ranking it fourth of eleven needs. This need was especially strong among teachers of the speech and language impaired (83.0%; rank = 2), for whom lack of suitability for parental use with the child was also the second most frequently cited inadequacy of currently available materials (see Table 20). It was somewhat less important for teachers of the severely handicapped (62.6%; rank = 6), perhaps because many of their students are institutionalized and do not have significant parent involvement of any sort.

Despite this reported need, from 69% to 76% of the teachers of the deaf, mildly handicapped, and speech and language impaired indicate that parents in their districts do not have access to instructional materials for home use.† Yet a resounding 63.5% of supervisors and other special education

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† Reference: NNA Statistical Report, Section II, Subsection B, Question 8
Note: Teachers of the blind, physically/orthopedically, and severely handicapped were not asked this question.

personnel felt that parents should have access to special education materials collections at the school site -- higher even than the percentage who felt that such access should be allowed to regular teachers -- and 50.7% felt that district/county collections should be accessible to parents.†

Moreover, 54.1% of the supervisors and other special education personnel felt that parent training in the use of instructional media and materials should be available at the school site, ranking such training ahead of all other noninstructional uses for local school materials collections, and 39% indicated that parent training should be available at the district/county level. Yet this training was reported available at the school site by only 21.4%, and at the district/county level, by only 14.5% of these respondents.§ And only 10.8% of the special education teachers indicated that parent training was being done in the local schools, with virtually no parent training at any other location.*

Training parents in the use of materials was cited by 39% of supervisors and teachers across all handicap areas as critical to their job, with again a stronger emphasis by teachers of the speech and language impaired, 61% of whom considered this skill critical. In spite of the importance of training parents, 44% of the teachers reported they were not trained to do so, and 28% were only self-trained for this task. Supervisors are no better prepared to

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† Reference: NNA Statistical Report, Section IV, Subsection B, Question 5, Respondent Population 7: Supervisors and Other Special Education Personnel

§ Reference: NNA Statistical Report, Section IV, Subsection B, Question 6, Respondent Population 7: Supervisors and Other Special Education Personnel

* Reference: NNA Statistical Report, Section IV, Subsection B, Question 10, Respondent Population 8: Teachers in Special Education

work with parents; 28% have no training and 36% are self-trained for this activity.[o]

Acquiring the skills to train parents in media and materials use was a relatively high priority for future training of teachers (20%), ranking 10th out of 47 skills. Evidence of this need is reinforced by supervisors, 21.0% (rank = 12) of whom indicated it as a high training priority for the teachers with whom they work and 18.4% (rank = 9), as a high priority for their own future training. Interestingly, more teachers (22.2%) and supervisors and other special education personnel (23.2%) chose regional consultants as the best source of training in this area than any other training source, including college faculty.[†]

It seems evident that parents themselves do not often take the initiative in dealing with the educational needs of their handicapped children. Only 4% of the special education teachers participating in the NNA reported that they borrowed materials in response to parental request,[*] and only 12% indicated that they sought information about materials for this reason. A slightly higher percentage (17.5%) of the supervisors and other special education personnel reported seeking information in response to parental request.[§]

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o Reference: NNA Statistical Report, Section III, Subsection B,
Questions 6-7: Teachers in Special Education
Questions 10-11: Supervisors/Other Special Education Personnel

† Reference: NNA Statistical Report, Section III, Subsection B,
Questions 8-9: Teachers in Special Education
Questions 12 A-B, 13: Supervisors and Other Special Education Personnel

* Reference: NNA Statistical Report, Section IV, Subsection B, Question 11,
Respondent Population 8: Teachers in Special Education

§ Reference: NNA Statistical Report, Section V, Subsection B, Question 3,
Respondent Population 8: Teachers in Special Education
Respondent Population 7: Supervisors and Other Special Education Personnel

Parent-Directed Child-Use Materials: Summary and Discussion

The observations noted above support the following conclusions:

- Parent-directed instructional materials for home use represent a relatively important unmet need across handicap categories, a need regarded as critical by 73% of the special education teachers, and especially so, by teachers of the speech/language impaired (83%).
- Parents are currently limited in their ability to participate by lack of access to appropriate materials and information, though most respondents felt such access was critical.
- Though virtually no parent training in the use of instructional media and materials is presently available, such training is viewed as an important aspect of both the teachers' and supervisors' jobs, and ranks ahead of all other noninstructional uses of local school materials collections.
- The majority of teachers and supervisors were untrained or self-trained to work with parents in this area, and placed a high priority on their need for training to do so.

If parents are to assume a more important and participatory role in the education of their children, they will need increased support -- materials, information, and training. Moreover, special educators will also need to be trained in working with parents to make parental participation feasible and effective. Parents must see themselves and be seen as facilitative agents in the educational process. This will require stimulation and encouragement by special education professionals, who must be willing to accept parents as partners in the instruction of their handicapped children.

Parent-Directed Child-Use Materials: Recommendations

1. The first step is to make parents feel welcome in the educational environment. This might be accomplished by holding workshops and conferences at the local materials centers, where parents can be introduced to currently available materials through discussions and

demonstrations, and invited to return for further examination of materials, both individually and at regularly scheduled meetings. This should remove the barrier to accessibility of existing materials. It might be noted that this sort of interaction with other parents can well evolve into the emotional and psychological support structure which many of these parents desperately need, and which also helps surface the kind of personal information about the child which enables a teacher to devise a more appropriate individualized instructional program.

2. While some of the existing materials may be directly transferrable to home use (once the parents have been instructed in their purpose and use), other materials will require adaptation, and there will be still other areas for which no materials exist and for which materials development should not proceed without due consideration for parent usage. It is recommended that an assessment be made of the suitability of materials for parent-directed in-home use, and that both parents and teachers participate in this assessment.

3. Teachers and supervisors must be given the training they need to be able to maximize the parental contribution to instruction. Such training might be delivered as inservice through regional workshops or university extension classes, but should ultimately become part of regular pre-service college programs.

4. It is also recommended that any materials information retrieval system, either present or contemplated, incorporate parental accessibility and appropriate filing and indexing to enable parents to use it effectively.

IV. INFORMATION ABOUT SPECIAL EDUCATION MEDIA AND MATERIALS

Teachers, supervisors, and other personnel involved in special education are faced with a steadily increasing amount of information which they need to access in order to perform their jobs effectively and efficiently. The NNA data provide a basis for identifying current gaps in information, useful sources of information, and preferred methods of delivery of information related to instructional media and materials. In addition, the NNA explored some elements of the feasibility of and teachers' familiarity with materials information retrieval systems.

This section examines the NNA data base with attention to the above four topics, beginning with the kinds of information that special educators seek and the extent to which such information is perceived to be available.

A. TYPES OF INFORMATION REQUESTED AND AVAILABLE

Table 25 presents a summary of respondents' requests for and accessibility to various types of information. As can be seen and would be expected, the percentages of supervisors and other special education personnel requesting information are generally higher than those for teachers, but the ordering of importance of the topics is roughly the same. Most frequently requested by all respondents is information about available instructional materials, which together with the high percentage of respondents requesting information about newly developed materials and adaptive devices, underscores the importance of this critical need for special educators, which was discussed earlier in this report (Tables 6-7). Also of great interest to both respondent groups is information about conferences and workshops.

TABLE 25 §

REQUESTS FOR AND AVAILABILITY OF INFORMATION

Number of Teachers = 9,090
Number of Supervisors/Others = 676

INFORMATION TOPICS	PERCENTAGE OF TEACHERS REPORTING		PERCENTAGE OF SUPERVISORS/ OTHERS REPORTING	
	Information Requested	Inadequate Access	Information Requested	Inadequate Access
Available Instructional Materials	69.2	36.0	66.1	27.1
Conferences and Workshops	55.9	36.6	60.2	32.5
Newly Developed Materials and Adaptive Devices	54.6	60.3	61.2	50.9
Funding Sources for Media and Materials	44.9	66.9	45.4	68.0
Assistance/Support Services from Other Sources	39.8	57.3	47.2	58.9
Learner Verified (Field Tested) Materials	38.2	62.1	43.7	61.4
Other Information Sources for Teachers	33.3	65.7	45.7	60.1
Training Packages Available	32.0	69.5	46.1	60.9
Relevant Publications (Newsletters)	32.0	35.5	43.5	32.5
Assistance/Support Services from ALRC	29.3	54.8	35.2	50.3
Research and Evaluation on Media and Materials	26.1	72.1	36.4	68.6
Materials Information Retrieval Systems	15.8	73.2	32.7	60.4
Assistance/Support Services from Special Offices	14.1	72.6	18.0	70.4
Assistance/Support Services from NCEMMH	8.6	81.7	16.7	72.9

§ Reference: NNA Statistical Report, Section V, Subsection B, Questions 1-2,
Respondent Population 6: Teachers in Special Education
Respondent Population 7: Supervisors and Other Special Education Personnel

Moreover, for all three of these topics, a fair percentage of teachers (10% - 17%) and of supervisors and other special education personnel (13% - 20%) report that they request such information once or twice a month, though most indicate that they make these requests only once or twice a year. For the other topics of information, however, not only are the percentages of respondents requesting information lower, but virtually all of those respondents report that they request such information only once or twice a year.

Availability of information on all topics is quite limited, with more than a third to over 80% of teachers, depending upon the topic, indicating that information is not easily accessible. From 27% to 73% of the supervisors and other special education personnel also report inadequate access, though information is generally more available to this group than to teachers, particularly with regard to available instructional materials, newly developed materials and adaptive devices, availability of training packages, and materials information retrieval systems. This finding is not surprising since supervisors would be expected to spend more of their time and effort seeking out information on these topics than would teachers.

For both groups, the percentage of respondents requesting information is generally inversely related to the percentage reporting inadequate access to such information. It is not clear, however, whether information is not requested because it is perceived to be inaccessible or whether information is perceived to be inaccessible because the effort is not expended to seek it out. The relatively low request rates for some topics may reflect a feeling of "it's no use trying" rather than lack of interest.

A curious anomaly in Table 25 is the topic of relevant publications (newsletters), which has the lowest percentage of teachers reporting inaccessibility,

but has an equally low percentage requesting information about it. This is also among the topics most accessible to supervisors and other special education personnel, who show a somewhat higher rate of information requests.

The main point to be noted from Table 25, however, is that even for the most frequently requested topics, more than a third of the teachers and almost as many supervisors and other special education personnel report that information is not readily accessible. This finding is most pronounced for the topic of newly developed materials and adaptive devices, for which a shocking 60% of teachers and 51% of supervisors and other special education personnel report inadequate access despite the fact that more than half of the teachers and more than 60% of the supervisors request such information. This is probably the most glaring example of the information gap in Table 25.

Yet only 3.3% of the supervisors and other special education personnel report that more than 5% of their annual operating budget is allocated to the purchase of information, with 37.5% indicating that the amount is less than 2%.*

Respondents' reasons for requesting information are presented in Table 26, where it can be seen that matching specific materials to individual learning needs outranks all other reasons, followed by curriculum planning and identification of materials for preview/possible purchase. This makes sense given the finding that the most frequently sought information is concerned with instructional materials and the evidence presented earlier in this report that a major concern of teachers deals with individualizing their students' instructional programs.

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* Reference: NNA Statistical Report, Section V, Subsection B, Question 4, Respondent Population 7: Supervisors and Other Special Education Personnel

TABLE 26 §

REASONS FOR REQUESTING INFORMATION

Number of Teachers = 9,090
Number of Supervisors/Others = 676

	Percentage of	
	Teachers	Supervisors
Matching Specific Materials to Individual Learning Needs	72.3	62.1
Curriculum Planning	58.7	58.3
Identification of Materials for Preview/Possible Purchase	52.3	58.0
Personal Professional Growth	44.9	45.6
Administrative Responsibilities	--	49.1
Identification of Training Materials	16.0	30.9

§ Reference: NNA Statistical Report, Section V, Subsection B, Question 3,
Respondent Population 8: Teachers in Special Education
Respondent Population 7: Supervisors and Other Special Education Personnel

B. SOURCES OF INFORMATION

Table 27 presents the sources of information used by at least a third of the teacher population. Most popular on this list are catalogs/materials reviews and other teachers, a finding consistent with the previously noted observation that the most frequently requested topic of information was availability of instructional materials. Almost all users of a source of information reported it to be of great or some value, with most sources being only of some value. Other teachers, professional conferences/workshops/meetings, and continuing education or college courses were the only information sources which were regarded by more teachers to be of great value than of some value.

The most valuable source of information for teachers is other teachers, followed by professional conferences/workshops/meetings. This explains why the latter source was one of the top three topics for which teachers requested information -- it is itself a major and very valuable source of information. Yet only about 27% of teachers receive funding to support attendance at such conferences.

Interestingly, only 24% of the teachers regard inservice training to be of great value as a source of information, with a surprising 9% indicating that it is of no value. Newsletters are also not considered very useful information sources, with more teachers reporting them of no value (11.1%) than of great value (8.8%). This may help explain the earlier finding that, although most teachers have access to information about newsletters, very few teachers actually request such information (see Table 25).

All sources of information in Table 27 are accessible to 85% or more of the special education teachers, except the local learning resource center and

TABLE 27 §

USE AND VALUE OF INFORMATION SOURCES

Number of Teachers = 9,090
Number of Supervisors/Others = 676

SOURCES OF INFORMATION	PERCENTAGE OF TEACHERS INDICATING		
	Used This Year	of Great Value*	Funding Available*
Catalogs/Materials Reviews	88.8	34.6	FREE
Other Teachers	82.6	47.4	FREE
Professional Literature	69.6	24.0	9.8
Professional Conferences/ Workshops/Meetings	69.4	35.2	26.5
Inservice Training	65.1	24.2	FREE
Supervisors/Coordinators	65.0	28.5	FREE
Newsletters	63.9	8.8	FREE
Information Specialists (e.g., Librarian)	48.3	18.7	FREE
Continuing Education or College Courses	48.2	26.0	8.9
Local Learning Resource Center	46.4	21.9	FREE
Consultants/Resource Persons	41.5	19.5	FREE
Administrative Personnel in District/Region	32.4	10.8	FREE

§ Reference: NNA Statistical Report, Section V, Subsection B, Questions 5, 6, 7,
Respondent Population 8: Teachers in Special Education
Respondent Population 7: Supervisors and Other Special Education Personnel

* Although only users responded to this question, percentages reported here are based on the total as a subgroup of, not a percentage of, the user group.

PERCENTAGE OF SUPERVISORS/OTHERS INDICATING		
Used This Year	of Great Value*	Funding Available*
91.1	33.3	FREE
72.6	39.8	FREE
77.4	29.0	32.4
81.5	47.5	54.0
68.3	32.0	35.8
55.8	30.2	FREE
75.6	17.2	25.3
47.8	21.7	FREE
41.0	16.9	10.4
46.4	24.4	FREE
54.3	29.6	22.3
50.3	21.3	FREE

respondent population and should be interpreted

consultants/resource persons, both of which are unavailable to about a quarter of these teachers (see Table 28). Most of the sources are free; of those which are not -- professional literature, professional conferences/workshops/meetings, and continuing education or college courses -- only about 9% to 27% of teachers get funds to support their use.

The data in Table 27 for supervisors and other special education personnel generally corroborate the findings for teachers. Three of the same top four sources for teachers are also those most used by supervisors, with newsletters replacing other teachers as the other most popular source. The most valuable sources are professional conferences/workshops/meetings, teachers, catalogs/materials reviews, inservice training, supervisors/coordinators, consultants/resource persons, professional literature, and the local learning resource center. All of these except catalogs and materials reviews, professional literature, and inservice training have higher percentages of these respondents indicating them to be of great value than of some value. Moreover, higher percentages of supervisors than of teachers receive funding to avail themselves of these information resources, all of which are accessible to at least 85% of the respondents, except the local learning resource center, reported not accessible by 25%.

Supervisors, like teachers, report newsletters to be of little value as an information source. In contrast to the findings for teachers, however, continuing education or college courses and supervisors/coordinators are regarded by supervisors as the least useful sources and are the only two sources used less by supervisors than by teachers.

TABLE 28 §

INACCESSIBLE SOURCES OF INFORMATION

Number of Teachers = 9,090
Number of Supervisors/Others = 676

SOURCES OF INFORMATION	PERCENTAGE OF TEACHERS REPORT	
	Source is Inaccessible	Use of
Computerized Materials Information Retrieval Systems	61.0	7
National Center (NCEMMH)	52.8	3
Other Materials Information Retrieval Systems	51.3	6
Special Offices	47.5	7
Area Learning Resource Center (ALRC)	41.5	15
Publishers' Representatives	36.9	15
Regional (In-State) Learning Resource Center	34.0	23
State Education Agencies	32.5	18
Local Learning Resource Center	28.2	46
Medical Personnel	25.9	31
College/University Staff	25.2	27
Consultants/Resource Persons	24.0	41

§ Reference: NNA Statistical Report, Section V, Subsection B, Questions 8, 5,
Respondent Population 6: Teachers in Special Education
Respondent Population 7: Supervisors and Other Special Education Personnel

PERCENTAGE OF SUPERVISORS/OTHERS REPORTING	
Source is Inaccessible	Use of Source
50.0	17.2
42.0	11.7
41.7	13.2
42.0	9.0
36.8	21.6
15.5	45.0
28.0	37.0
12.3	51.3
25.4	46.4
21.9	30.5
19.8	34.9
14.6	54.3

Table 28 presents the least accessible sources of information for both teachers and supervisors. Computerized materials information retrieval systems heads the list, followed in third place by other materials information retrieval systems. As expected for these sources, usage level is low, though they tend to be used somewhat more by and are more accessible to supervisors than teachers.

More interesting in Table 28 are the last few sources -- regional and local learning resource centers, medical personnel, college staff, and consultants. For all of these sources, teacher usage is between 26% and 46%; yet 24% to 34% of the teachers report these valuable resources are not readily accessible. Inaccessibility cannot be a result of lack of funding to utilize because they are all reported by the respondent teachers to be free, except for college staff. Apparently they are simply not there for a significant percentage of teachers. This finding does not extend to the supervisors and other special education personnel, more of whom seem to be able to make contact with these resources.

C. METHODS FOR DELIVERY OF INFORMATION

Table 29 presents a list of possible methods for delivery of information, in decreasing order of respondents' preference for their use by 1980. Substantially higher than all the other methods, conferences/training sessions and consultant service rank first and second for both teachers and supervisors and other special education personnel. These are methods that are familiar and conveniently available to both respondent groups, though more so to supervisors than to teachers. Moreover, they have been used by a fairly large percentage of both groups, again more by supervisors than by teachers.

TABLE 29 §

METHODS FOR DELIVERY OF INFORMATIO

Number of Teachers = 9,090
Number of Supervisors/Others = 67

METHODS FOR DELIVERY OF INFORMATION	PERCENTAGE OF TEACHERS INDICATING		
	Have Used	Prefer to Use	Difference
Conferences/Training Sessions	69.0	50.7	-18.3
Consultant Service	33.0	47.3	+14.3
Telephone (Toll-free Service)	11.3	28.8	+17.5
TV Phone	1.0	20.4	+19.4
Bound Books and Pamphlets	47.2	18.3	-28.9
Loose-leaf Books	38.1	18.3	-19.8
Card Files	22.1	17.9	- 4.2
Microfilm (or fiche) Reader	14.4	16.0	+ 1.6
Telecopier	1.3	15.0	+13.7
Teleconference Service	2.4	13.7	+11.3
Remote Console/Typewriter Terminal	1.6	11.4	+ 9.8
Cathode Ray Tube/Video Terminal	0.9	9.8	+ 8.9
Telewriter	1.0	8.9	+ 7.9

§ Reference: NNA Statistical Report, Section V, Subsection B, Questions 16 C-D,
Respondent Population 8: Teachers in Special Education
Respondent Population 7: Supervisors and Other Special Education Personnel

PERCENTAGE OF SUPERVISORS/OTHERS INDICATING		
Have Used	Prefer to Use	Difference
73.1	57.1	-16.0
51.6	50.1	- 1.5
24.9	33.6	+ 8.7
2.5	21.3	+18.8
49.7	13.6	-36.1
42.5	18.2	-24.3
27.2	10.8	-16.4
25.1	14.1	-11.0
3.6	11.7	+ 8.1
8.0	10.8	+ 2.8
5.8	14.9	+ 9.1
2.5	15.4	+12.9
0.9	5.3	+ 4.4

Yet the percentage of teachers and of supervisors who prefer to use these methods is less, not more, than those who currently use them, suggesting that, while these methods are still popular, their desirability is on the decline. Coming up to replace them, perhaps in a more distant future, is an array of sophisticated, high technology equipment, capable of providing the detailed and immediate feedback teachers need. This includes the TV phone, remote console/typewriter terminal, cathode ray tube/video terminal, and telewriter. As with the similar trend toward sophisticated instructional equipment discussed earlier, the movement is low profile but quite discernible.

D. MATERIALS INFORMATION RETRIEVAL SYSTEMS

The information "explosion" and the need to individualize instruction are two of the factors which have pointed to a need for more sophisticated materials information retrieval systems. Over the past few years many such systems have been developed and implemented by various agencies. The utility and cost-effectiveness of these systems are dependent on a high user rate. The NNA provides information on the respondents' knowledge and use of existing systems and gives some indication of the number of potential users.

The majority of the teachers (73%) and supervisors (60%) reported that they had inadequate access to information about materials information retrieval systems. This type of information, however, was only infrequently requested by teachers (16%) or supervisors (33%) (see Table 25). Over half of both groups indicated that such systems, both manual and computerized, were out of their reach, used by only about 7% of the teachers and 17% of supervisors and other special education personnel (see Table 28).

Table 30 presents more specific information regarding materials information retrieval systems, both commercial and publicly funded, with the latter at various levels from district/county to national. It will be immediately noted that at least half of the NNA teacher respondents were unaware of any of these systems, with commercial systems, NIMIS, and other national systems unfamiliar to as many as 75% of these teachers. Supervisors tended to be generally more aware of all systems than were teachers, but were least familiar with the same three systems indicated above to be least familiar to the teachers. Most familiar to both groups was ERIC/CEC, with only 49% of teachers and 20% of supervisors declaring themselves unaware of this system.

For those few who were aware of the district/county, commercial, regional, or state systems, introduction to them came through either inservice training or colleagues, with some supervisors indicating that they learned about the system at meetings. Closer Look, NIMIS, and other national systems were made familiar to respondents through the professional literature. ERIC/CEC, the most familiar system, was introduced to all respondents chiefly through the professional literature, but also through colleagues, preservice training, and for supervisors, through inservice training and at meetings.

Less than 25% of teachers know how to use any system, and even fewer actually use any systems. Those most used by teachers are district/county or regional systems and ERIC/CEC, but even these are used no more than once or twice a year, except for district/county systems for which as many teachers report use five or more times a year as once or twice a year. Teachers who used the systems were generally satisfied with them. The chief complaints of those who were not satisfied varied with the system -- "response time too long," "information of little use," "system overly cumbersome," and "other reason."

TABLE 30 §

MATERIALS INFORMATION RETRIEVAL SYST

SPECIAL EDUCATION TEACHERS

† Number of Respondents = 9,090

PERCENTAGE OF RESPO

Materials Information Retrieval Systems	Unaware of System	Introduction to System through			Profes Liter
		Pre-Service	In-Service	Colleagues	
District/County System	58.7	3.5	9.9	7.1	
Commercial System	75.0	-	2.8	2.6	
Regional System	57.0	3.9	8.8	6.0	
State System	64.6	-	4.6	4.1	
Closer Look	70.0	-	-	-	
ERIC/CEC	49.4	8.9	-	6.7	
NIMIS	75.7	1.2	-	-	
Other National System	74.4	-	-	-	

SUPERVISORS AND OTHER SPECIAL EDUCATION PERSONNEL

† Number of Respondents = 676

PERCENTAGE OF RESPO

Materials Information Retrieval Systems	Unaware of System	Introduction to System through			Profes Liter
		Pre-Service	In-Service	Colleagues	
District/County System	47.8	4.4	11.5	7.8	
Commercial System	60.7	-	4.9	4.0	
Regional System	36.4	-	13.6	8.7	
State System	40.4	-	9.3	7.8	
Closer Look	48.5	-	-	-	10
ERIC/CEC	19.5	8.9	6.1	11.2	20
NIMIS	51.2	-	-	-	7
Other National System	58.4	-	-	-	2

§ Reference: NIA Statistical Report, Section V, Subsection B, Questions 9, 10, 11, 12,
Respondent Population 8: Teachers in Special Education
Respondent Population 7: Supervisors and Other Special Education Personnel

† Note: The number of respondents for teachers and for supervisors/others serves as the base f
except those for the column headed "Satisfied Users," for which the percentages are b
used the given system during the year.

...ENTS INDICATING

...ional ...ture	Meetings	Know How To Use	Have Used This Year	Satisfied Users
-	4.4	24.9	22.9	70.0
-	-	7.2	6.5	65.5
-	4.2	21.4	17.4	64.6
-	3.4	11.6	9.2	58.9
.5	-	6.7	4.7	66.7
.6	-	23.4	14.9	73.8
.8	-	3.0	2.0	61.2
.5	-	2.6	2.1	72.1

...ENTS INDICATING

...ional ...ture	Meetings	Know How To Use	Have Used This Year	Satisfied Users
-	6.4	33.6	30.1	81.8
-	3.3	14.5	13.6	70.7
-	10.1	40.8	34.2	74.5
-	10.9	31.8	26.1	70.1
.8	-	18.2	12.3	71.1
.3	9.9	50.4	33.1	74.6
.0	-	13.2	7.7	69.2
.2	2.4	6.2	5.0	64.7

... all percentage computations for the corresponding tables, ... on the number of respondents indicating that they had

Knowledge and use of all systems were greater for supervisors than they were for teachers, though only moderately so for district/county systems. The systems most frequently used by this group were the same as those used by teachers, but with somewhat greater use for regional than for district/county systems. Supervisors tended to be satisfied with the systems they used, even more so than were the teachers. The complaints of the dissatisfied users were the same as those already mentioned for teachers.

When asked if they would use a computerized materials information retrieval system if available to them, 44% of the teachers and 54% of the supervisors said "yes." But only 4% in both groups indicated a flat "no." Half of the teachers and 39% of the supervisors indicated that they didn't know if they would use it or not. The same response tendency (with virtually identical percentages) was found for a coded card file information retrieval system.

Information about Special Education Media/Materials: Summary and Discussion

The major observations in this section can be summarized as follows:

- More teachers and supervisors requested information about available instructional materials, conferences and workshops, and newly developed materials and adaptive devices than about any other topic, and, for some respondents, as often as twice a month.
- Even for the most frequently requested topics, more than a third of the teachers and almost as many supervisors report that such information is not readily accessible. The most glaring example of this information gap is the topic of newly developed materials and adaptive devices, for which 60% of the teachers and 51% of the supervisors report inadequate access, despite the fact that more than half of these respondents request such information.
- The major reasons for seeking information, for both teachers and supervisors, are matching specific materials to individual learning needs, curriculum planning, and identification of materials for preview/possible purchase.
- Generally, information and information sources are more available to, and more easily accessed by, supervisors than teachers.

- The most frequently used sources of information for both teachers and supervisors are catalogs and materials reviews, other teachers, professional literature, professional conferences/workshops/meetings, and newsletters. Except for newsletters, these are also the most valuable sources.

- Most information sources are accessible and free. Of those which are not free, relatively few teachers receive funds to support their use. A higher percentage but still less than half of the supervisors receive funds for this purpose.

- The least accessible information sources to both teachers and supervisors are materials information retrieval systems, both computerized and manual.

- Despite their value and moderately high level of use, learning resource centers (both regional and local), and medical personnel, college staff, and consultants are not readily accessible to 25% or more of the teacher respondents.

- Both teachers and supervisors rank conferences and training sessions and consultant service substantially higher than all other preferred methods for delivery of information, though the percentage preferring these methods is less than the percentage currently using them, suggesting that their desirability is on the decline.

- A low profile trend toward desire for more sophisticated, high-technology materials information delivery systems is already in evidence.

- Most respondents report that they are unaware of materials information retrieval systems at any level, with commercial systems, NIMIS, and other national systems unfamiliar to as many as 75% of the teachers. Most familiar was ERIC/CEC, yet half of the teachers and 20% of the supervisors were unaware of this system.

- Of those few who are aware, still fewer use any of the systems, but most of those users are satisfied with the system. The most used materials information retrieval systems are those at the district/county and regional levels and ERIC/CEC.

The high priority assigned by teachers and supervisors alike to a need for better information about instructional media and materials is indeed justified by study of the data presented in this section. Current information sources are either inaccessible or only of limited value and yet the need for fast-turnaround information in sufficient detail to match materials to individual learning objectives is accelerating on an almost daily basis.

It is well recognized that the advent of individualized educational programs has brought about a demand for instructional materials that can be tailored to a student's needs. It is perhaps less evident that this demand has a subtle corollary -- a profound change in the role of teacher. A teacher is now more than an instructor using an externally imposed curriculum designed somewhat abstractly to suit everyone. A teacher is now diagnostician, curriculum planner, materials selector, curriculum and materials evaluator, and instructor -- and all of this for each and every student.

With this new role comes an unrelenting need for information -- information of such specificity that it is useful at the hard practical level of day to day application -- the kind of information which calls for recourse to computerized technology as naturally as it does inevitably. The NNA pinpoints a need to identify means of increasing the utility of national materials information retrieval systems. If meaningful individualized instruction is to be successfully implemented, and not degenerate into a pro forma exercise, there simply is, for the long run, no alternative.

Teachers apparently are open-minded about the use of these computerized systems, for only 4% indicated that they would not. With appropriate preservice and inservice training in their use, even teachers who are hesitant because they don't understand them or are wary because of the failure of earlier systems to deliver on promises can become enthusiastic converts.

Short-run solutions must take into account the blurring of the traditional distinction between the supervisor as the designer of curriculum and the purchaser of materials and the teacher as simply an instructor. Thus it is important to open up the accessibility of information to teachers that is presently enjoyed by supervisors. Though more a holding action than a real solution, it would certainly be an improvement upon the current situation.

Information about Special Education Media and Materials: Recommendations

1. Continued development and refinement of a national materials information retrieval system should proceed apace. Potential users ought to be involved in this process to whatever extent possible to increase the likelihood of meeting user needs.

2. If existing and newly developed materials information retrieval systems are to be used effectively, information about and training in the use of such systems must be provided and properly disseminated. This publicity effort should include a realistic presentation of the benefits and limitations of the system and what is required to use it to its best advantage.

3. It would be advisable to examine the potential of regional and local learning resource centers for identifying and providing information about available instructional materials, particularly those which are newly developed, on a regular program basis (for example, through workshops), rather than just in response to a particular question. Until the ideal of direct teacher access to computerized information systems is realized, an intermediary approach through learning resource center staff appears to be compatible with the kind of information delivery system teachers are most willing to accept.

V. DISTRIBUTION OF SPECIAL EDUCATION MEDIA AND MATERIALS

The need for individualized instruction and the unique educational needs of some students require teachers to use a variety of instructional media and materials. While teachers gradually acquire a collection of such materials in their classrooms, there is a continuing need to identify and obtain new materials. (Recall that lack of variety is the chief inadequacy of currently available materials cited by NNA respondent teachers.) Collections of instructional media/materials allow teachers to preview materials before purchasing, borrow materials needed for short periods of time, and supplement classroom materials. The NNA data provide a general picture of the use of materials collections by teachers -- those used, frequency of use, and purposes for using.

Special education teachers are not overwhelmingly dependent upon borrowed materials, with over half indicating that they are moderately or slightly dependent and only 9% reporting that they are very dependent.* Their primary reasons for borrowing materials are to supplement their basic instructional materials and to meet specific needs of individual students (Table 31).

Although many teachers indicate that they have a large array of materials in their classrooms, they also report that there is a still larger group of materials which they do not use (Table 32). Some are not widely used for obvious reasons (e.g., large print and Braille materials, audio texts, reference books, etc.). For some others -- specialized comics, multimedia kits, programmed texts -- it may be presumed from the high preferences teachers expressed earlier in this report (Table 16) that their lack of use is due to inaccessibility.

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* Reference: NNA Statistical Report, Section IV, Subsection B, Question 8, Respondent Population 8: Teachers in Special Education

TABLE 31 §

REASONS FOR BORROWING MEDIA AND MATERIALS

Number of Respondent Teachers = 9,522

	PERCENTAGE OF TEACHERS
To Supplement Basic Instructional Materials	75.0
To Meet Specific Needs of Individual Students	74.5
Long-Term General Classroom Use (more than 1 week)	54.0
Evaluation/Classroom Tryout of Materials	52.9
Short-Term Specific Instructional Objectives (1 week or less)	43.8
Examination of Materials	42.1
Personal Professional Growth	34.0
Parental Request for Materials	4.1
Do Not Presently Use Borrowed Materials	5.8

§ Reference: MNA Statistical Report: Section IV, Subsection B, Question 11, Respondent Population 8: Teachers in Special Education

TABLE 32§

SOURCES OF SPECIAL EDUCATION

Number of Respondent Teacher

NEVER USE		HAVE IN CLASSRO
Materials	Percentage of Teachers	Materials
Braille materials	76.8	Flashcards
Computer-aided materials	73.5	Games, toys, puzzles
Sound slides	62.5	Manipulatives
Audio textbooks	60.4	Textbooks
Large type print materials	56.7	Maps, charts, pictures
Videotapes	55.9	Records
Filmloops	54.1	Cassette tapes
Flannelboard materials	29.3	Flannelboard materials
Programmed texts	30.1	Programmed texts
16mm films	33.9	
Sound filmstrips	33.0	
Multimedia kits	30.6	
8mm films	54.0	
Audio reference/library books	53.9	
Reel-to-reel tapes	53.2	
Programmed machine materials	53.0	
Specialized comics	52.4	
Audio flashcards	50.7	
Captioned films	50.6	
Slides	50.5	
Models	37.7	

§ Reference: NNA Statistical Report, Section IV, Subsection B, Question 7, Respondent Population 6: Teachers in Special Education

...ERIALS

= 9,322

	BORROW FROM SCHOOL SITE	
Percentage of Teachers	Materials	Percentage of Teachers
61.3	Reference/library books	54.3
57.5	Magazines, periodicals	46.8
45.7	Filmstrips	41.3
42.4		
38.9	Maps, charts, pictures	30.9
25.5	Records	35.2
32.3	Cassette tapes	31.3
37.3		
24.3		
	16mm films	20.1
	sound filmstrips	28.4
	multimedia kits	17.6

From Table 33, it is evident that most of the teachers have convenient access to materials collections at their school site (83%) and district/county offices (58%). Regional (in-state) collections are available to about a third of the teachers, and college/university collections, to about 20%. The least convenient collections were regional/multi-state (5%) and national organizations (6%). Interestingly, 3.2% of the teachers reported convenient access to no collections whatsoever.

The importance of convenient access is reflected in the frequency of use data also presented in Table 33. While 42% of the teachers used the school site collection once a week, only 7% reported this use rate for district/county collections, and only 2% for regional (in-state) centers. District/county collections are used every month or two; regional (in-state) centers, even less frequently; and college/university, national, and regional/multistate centers are used only once or twice a year, if at all.

Moreover, teachers' primary sources for borrowing each type of media and materials not already in the classroom are primarily at the school site and secondarily at the district/county office. Teachers of the deaf and hard of hearing and blind and visually impaired tend to use national organizations as media and materials sources more frequently than do other teachers.†

In short, teachers use only the resources that are immediately and conveniently available, and only occasionally reach beyond the school and the district/county collections.

The school site and district/county facilities also serve a variety of purposes in addition to providing materials -- primarily, browsing, direct

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† Reference: NNA Statistical Report, Section IV, Subsection B, Question 7, Respondent Population 8: Teachers in Special Education

TABLE 33 §

INSTRUCTIONAL MEDIA/MATERIALS COLLECTIONS

Number of Respondents = 9,522

	MEDIA/MATERIALS COLLECTION			
	School Site	District/ County	Regional (In-State)	Colleges/ Universities
	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers	Percentage of Teachers
CONVENIENTLY ACCESSIBLE	82.8	58.2	36.0	19.5
FREQUENCY OF USE				
Once a Week	42.0	7.4	2.2	0.4
Once a Month	18.1	17.6	7.1	2.0
3 - 5 times a year	10.4	15.9	9.3	4.4
1 - 2 times a year	7.4	10.7	11.1	7.9
OTHER ACTIVITIES				
Browsing	55.7	29.9	14.8	13.9
Direct Pupil Instruction	42.0	14.4	-	-
Preview of Materials	37.9	26.6	14.9	-
Using Professional Literature	37.4	23.4	11.0	17.3
Materials Production	28.6	14.3	-	-
Inservice Training	27.0	24.1	11.1	-
Demonstration of Materials	22.2	18.0	10.1	-
MAJOR INADEQUACIES				
Size of Collection				
Adequate	31.6	24.8	-	-
Inadequate	51.4	27.7	-	-
Scope of Collection				
Adequate	23.1	21.0	-	-
Inadequate	53.7	28.0	-	-

§ Reference: NNA Statistical Report, Section IV, Subsection B, Questions 1, 2, 10, 9, Respondent Population B: Teachers in Special Education

pupil instruction, preview of materials, and use of professional literature. All of these activities are less frequent at the district/county facility, with direct pupil instruction substantially so, and almost never take place at the more distant, low-usage facilities (Table 33).

According to supervisors and other special education personnel, materials collection facilities should be more widely used for a greater variety of activities than they presently are. These activities include parent training, demonstration of materials, materials production, preservice training, and using information retrieval systems.

As can be seen in Table 34, from 40% to 54% of these respondents feel that such activities should be available at the local school; from 32% to 41%, at the district/county office; and from 25% to 33%, at the regional (in-state) center, confirming the previously noted finding that the proximity of a materials collection center is a major factor in determining its use -- for any reason. In all cases, these percentages are considerably higher than the percentages of respondents indicating that these activities are already taking place. This is particularly true for parent-training, which shows the largest increases from "currently available" to "should be available" at all three sites -- a point noted earlier in this report.

Also showing quite large increases from "currently available" to "should be available," and the activity receiving the greatest number of votes at all collections centers except the local school (where it is a close second to parent training), is demonstration of materials, a finding which focuses yet another time on the critical need of teachers for introduction to new and different instructional materials. Recall that information about newly

TABLE 34§

NON-BORROWING ACTIVITIES AT MATERIALS COLLECTIONS CENTERS

Number of Supervisor/Other Respondents = 649

ACTIVITIES	SCHOOL SITE		DISTRICT/COUNTY		REGIONAL (IN-STATE)	
	Percentage Indicating		Percentage Indicating		Percentage Indicating	
	Currently Available	Should be Available	Currently Available	Should Be Available	Currently Available	Should Be Available
Parent Training	21.4	54.1	14.5	39.0	8.5	27.9
Demonstration of Materials	40.5	52.4	28.8	41.0	23.1	32.5
Materials Production	31.0	44.2	22.7	33.4	14.5	26.3
Preservice Training	26.2	41.9	19.7	32.8	14.6	24.5
Using Information Retrieval Systems	20.6	40.1	20.3	32.4	21.0	27.9

§ Reference: NNA Statistical Report, Section IV, Subsection B, Questions 6A-B, Respondent Population 7: Supervisors and Other Special Education Personnel

developed materials and adaptive devices was almost scandalously unavailable to teachers, despite their high request rate for it.

Reinforcing the evidence of this need still further is the finding in Table 33 that 40% of the supervisors and other special education personnel feel that using information retrieval systems should be an available activity at the school site, twice as many as reported that it presently is. This finding is repeated, though with lesser emphasis, for the district/county office.

Teachers rated the most frequently used collections, school site and district/county, as inadequate in both size and scope of collection, but considered other aspects of these collections generally adequate (Table 33). Supervisors indicated usage of a greater variety of collections than did teachers, and rated state, regional, national, and college and university collections inadequate with regard to size and scope of collection and to information on collection content.*

Distribution of Special Education Media/Materials: Summary and Discussion

The major observations of this section are summarized as follows:

- Special education teachers are not heavily dependent upon borrowed materials.
- Teachers borrow materials chiefly to supplement classroom materials and to meet specific needs of individual students.
- Most teachers have convenient access to the school and district/county materials collections, but not to other, more distant collections.

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* Reference: NNA Statistical Report, Section IV, Subsection B, Question 1, Respondent Population 7: Supervisors and Other Special Education Personnel

- Frequency of use of a materials collection is a direct function of its proximity and accessibility to the teachers, ranging from once a week at the school site to once or twice a year at regional (multistate) and national centers.

- Teachers borrow most of the materials they do not already have in the classroom from the school collection and, to a lesser degree, the district/county center.

- Teachers of the blind and visually impaired and deaf and hard of hearing use national organizations as materials sources more frequently than do teachers in other handicap categories.

- Teachers rated the most frequently used collections as adequate in all respects except size and scope of collection.

- Supervisors and other special education personnel tend to use a greater variety of materials sources, rating them adequate in all respects except size and scope of collection and information on the content of the collection.

- The school and district/county collections are used by teachers for a number of activities besides borrowing -- primarily, browsing, direct pupil instruction, preview of materials, and use of the professional literature.

- Supervisors and other special education personnel indicate that materials collections should be used more often than they presently are for parent training, demonstration of materials, materials production, preservice training, and use of materials information retrieval systems.

Though teachers do not presently indicate a heavy dependence upon borrowed materials, it should not be presumed that they are satisfied with those immediately available in their classrooms. All indications in other sections of this report are to the contrary. It is likely that teachers instead are "making do" with what they have or can easily get at the local school because other materials sources are simply too inaccessible to be useful. It is also likely that they don't seek further for the materials they need because they are simply unaware of their existence.

There is a strong suggestion that teachers' level of dependency upon borrowed materials will change as the need for specific matching of materials to

student needs receives increasingly greater attention, for this is currently the major reason for borrowing for 75% of the teachers.

At the present time, the selection of new materials for a specific use with a specific student is a personal, hands-on activity. The teacher must review the materials with the student needs in mind, as catalogs would not present the in-depth information required, and teachers do not generally have access to research and evaluation information on materials. Thus the teacher has little choice but to evaluate the materials on site and select the best available.

It is unlikely that this situation will change for some time, even with the widespread use of a well designed computerized information retrieval system. Though such a system would certainly narrow the options, it is hard to imagine an adequate replacement for first-hand familiarity with instructional materials in matching these to individual student needs.

The main conclusion from this section is that materials collections which are inconvenient for teachers to access do not get used. These collections, no matter how well endowed, are simply lost to teachers and consequently to their students.

Yet it remains that even the most accessible and most frequently used collections, particularly the school site, but to some extent, the district/ county center also, are inadequate in size and scope, lacking the variety of materials that teachers indicate they need.

Distribution of Special Education Media and Materials: Recommendations

1. It is suggested most strongly that the primary objective of federal policy in the area of adequate materials distribution systems should be opening up the presently inaccessible and under-utilized materials collections to the teachers. Since there is little hope that teachers can be persuaded to seek out such collections, the obvious alternative is to take the collections to the teachers. This could be done by regularly scheduled materials demonstrations at the school site. The content of such demonstrations could be prepared by regional resource center personnel in response to particular requests by teachers, or just as introductions to newly developed materials. They could be transported as portable materials libraries similar to bookmobiles. Such "DEMObiles" would permit the first-hand acquaintance with materials that teachers appear to need, and which cannot be supplied by descriptions in catalogs or even sophisticated retrieval systems.

   The role of regional resource centers should be reexamined and perhaps enlarged to include greater emphasis on materials demonstrations, thus filling a significant information gap described in an earlier section of this report (see page 86). This suggests a more active, positive role for such agencies -- anticipating and filling teachers' needs in an ongoing program -- rather than a passive resource responding chiefly to teacher requests. (It might be noted that such workshops held on a regular basis would be ideal for an information exchange among teachers, and would provide the opportunity for teachers to get concerted help from the information source they regard as most valuable -- other teachers.)

2. Federal support should be continued for national organizations which provide a source of more specialized media and materials, such as those used by teachers of the blind and visually impaired and the deaf and hard of hearing.

3. Support should be provided for opening up local materials collections to other significant activities, including parent training, materials demonstrations, materials production, preservice training, and use of materials information retrieval systems.

VI. TRAINING IN SPECIAL EDUCATION MEDIA AND MATERIALS

Emphasis has been placed earlier in this report on the need for additional teacher training in the use of media and materials -- how to individualize programs with available materials, how to adapt available materials when necessary, and how to design materials not currently available -- a need that has grown significantly as teachers have been confronted with the complex task of devising suitable individualized educational programs for their handicapped students.

Special education teachers and supervisors and other special education personnel express the critical nature of these skills in Table 35, where it is seen that selecting media and materials according to specific student characteristics and with specific learning objectives, designing and adapting materials, again with reference to specific student characteristics, and evaluating materials effectiveness are the ten most critical skills (from a list of 47) needed by teachers to carry out their jobs.

Table 35 also presents sources of prior training in these critical skills. Teachers and supervisors indicate the same pattern of prior training, with most areas emphasized in their preservice college program, but with materials evaluation and selecting, designing, and adapting materials according to pupil interest level learned on their own. Approximately equal proportions of respondents indicate that selecting materials for social and personal development and designing/adapting materials for pupil functional level are learned in college or through self-training.

Table 36 presents the highest priorities for future training selected by teachers and by supervisors and other special education personnel. All

TABLE 35 §

CRITICAL SKILLS AND SOURCES OF

Number of Teachers = 9,
Number of Supervisors/Other

MOST CRITICAL SKILLS

	Percentage of Teachers	Percentage of Supervisors
HOW TO SELECT MEDIA AND MATERIALS ACCORDING TO:		
Pupil Functional Level	88.5	82.2
Pupil Interest Level	76.7	68.0
HOW TO DESIGN/ADAPT MEDIA/MATERIALS ACCORDING TO:		
Pupil Functional Level	81.9	70.7
Specific Learning Objectives	81.1	75.2
Pupil Interest Level	69.2	57.5
HOW TO EVALUATE EFFECTIVENESS OF MEDIA/MATERIALS	70.3	76.8
HOW TO SELECT MEDIA AND MATERIALS ACCORDING TO SPECIFIC LEARNING OBJECTIVES FOR:		
Language/Speech Development	69.6	61.3
Social/Personal Development	69.4	67.4
Cognitive Development	68.8	68.0
Academic Development	68.3	67.2

§ Reference: NNA Statistical Report, Section III, Subsection B,
Questions 6-7 for Teachers in Special Education
Questions 10-11 for Supervisors and Other Special Education Personnel

IOR TRAINING

32
= .690

SOURCES OF PRIOR TRAINING			
College/Preservice		Self-Trained	
Percentage of		Percentage of	
Teachers	Supervisors	Teachers	Supervisors
45.9	40.9	33.8	32.8
28.5	30.1	52.4	45.6
40.8	33.4	37.2	38.9
47.4	35.6	24.9	29.3
25.7	23.7	54.5	48.9
31.2	23.8	38.5	38.1
61.4	46.3	20.2	25.8
38.4	37.8	37.9	37.6
62.3	58.2	18.4	19.6
64.8	61.0	20.8	19.8

TABLE 36 §

HIGHEST PRIORITIES FOR FUTURE TRAINING

FROM THE LIST OF SKILLS BELOW, SELECT UP TO FIVE THAT REPRESENT YOUR HIGHEST PRIORITIES FOR

	TOTAL TEACHERS	BLIND	DEAF
Number of Respondents	9,432	237	644
	Percent	Percent	Percent
HOW TO SELECT MEDIA/MATERIALS ACCORDING TO SPECIFIC LEARNING OBJECTIVES FOR:			
Language/speech development	39.8	21.1	59.5
Social/personal development	37.2	37.1	33.2
Academic development	31.0	29.1	35.2
Cognitive development	29.4	32.5	29.7
Psychomotor development	-	23.6	-
HOW TO SELECT MEDIA/MATERIALS ACCORDING TO:			
Pupil functional level	35.3	36.7	34.2
Pupil interest level	23.1	-	24.2
pupil input mode	-	-	-
HOW TO DESIGN/ADAPT MEDIA/MATERIALS ACCORDING TO:			
Specific learning objectives	37.8	30.8	34.8
Pupil functional level	26.6	37.6	26.7
pupil interest level	-	-	-
HOW TO:			
Evaluate media and materials effectiveness	29.1	26.2	28.3
Train parents in materials use	20.3	26.6	17.7
Interpret media and materials use research	-	-	-

§ Reference: NNA Statistical Report, Section III, Subsection B, Question 8 (Question 128 for Supervisors and Other Special Education Personnel)

TURE TRAINING.

MILD	SPEECH	PHYS/ORTHO	SEVERE	SUPERVISORS/ OTHERS
5,797	1,304	259	1,191	690
Percent	Percent	Percent	Percent	Percent
30.2	73.3	27.8	45.8	25.9
41.6	16.4	28.6	43.2	26.2
37.8	-	29.0	20.0	20.6
28.3	32.0	25.9	32.2	26.2
-	-	28.2	29.0	-
34.6	34.9	32.0	40.1	26.8
25.7	16.9	-	-	-
-	14.6	-	-	-
38.5	46.0	29.3	29.7	32.3
25.0	25.3	29.0	33.1	17.0
18.5	-	-	-	-
29.4	34.4	27.0	23.4	44.6
-	33.3	19.7	20.8	18.4
-	-	-	-	22.9

respondents indicate their highest priorities to be selecting, designing/adapting, and evaluating media and materials, and training parents in the use of materials. As can be seen from this table, teachers across handicap areas were remarkably consistent in their priority choices. The few variations, e.g., how to select media and materials according to specific objectives for psychomotor development for teachers of the blind, physically/orthopedically handicapped, and severely handicapped, seem reasonable given the characteristics of students within those handicap areas, as do the differential emphases within handicap categories (e.g., the extremely high priority for selecting materials for language and speech development assigned by teachers of the deaf and hard of hearing and of the speech and language impaired).

The most urgent training needs of supervisors and other special education personnel are almost identical to those for teachers, although there is some reordering of priorities. Materials evaluation ranks highest for this respondent group, who also include the interpretation of media and materials research as their seventh-ranked need for training, but omit selection of materials according to pupil interest level from their top ten priorities.

The best sources for acquiring the needed training, presented in Table 37, are indicated by teachers to be either college faculty (for selection and design of materials for learning objectives) or experience on the job (for materials evaluation and for selection and design of materials for social/personal development, or pupil functional or interest level). Regional consultants are seen as the best source for training teachers to help parents with home use of instructional materials.

TABLE 37 §

BEST SOURCE FOR FUTURE TRA

Number of Teachers = 9,4
Number of Supervisors/Others

HIGHEST PRIORITY TRAINING NEEDS	PERCENTAGE OF TEACHERS I	
	Experience on Job	College Faculty
HOW TO SELECT MEDIA/MATERIALS ACCORDING TO SPECIFIC LEARNING OBJECTIVES FOR:		
Language/Speech Development	14.6	39.3
Social/Personal Development	29.7	23.1
Academic Development	20.4	33.2
Cognitive Development	15.4	43.8
HOW TO SELECT MEDIA/MATERIALS ACCORDING TO:		
Pupil Functional Level	32.2	21.8
Pupil Interest Level	43.3	11.6
HOW TO DESIGN/ADAPT MEDIA/MATERIALS ACCORDING TO:		
Specific Learning Objectives	17.6	26.6
Pupil Functional Level	29.6	21.8
HOW TO:		
Evaluate Effectiveness of Media/Materials	26.0	20.1
Train Parents in Child-Use Materials	15.2	16.7
Interpret Media and Materials Research	-	-

§ Reference: NAA Statistical Report, Section III, Subsection B,
Question 9 for Teachers in Special Education
Question 13 for Supervisors and Other Special Education Personnel

...ICATING Regional Consultants	PERCENTAGE OF SUPERVISORS/OTHERS INDICATING College Faculty	Regional Consultants	Experience on Job
14.1	27.4	22.3	11.7
13.7	15.5	22.1	25.4
11.9	31.0	18.3	14.8
12.0	35.9	23.2	7.7
12.0	28.6	14.1	25.4
11.5	-	-	-
16.4	26.0	23.3	16.6
13.7	20.5	13.7	27.4
15.9	15.3	28.9	16.6
22.2	20.5	18.9	15.7
-	36.7	18.4	8.9

Table 37 also presents the best sources of training indicated by supervisors and other special education personnel. College faculty are seen as the best training source for most skills. Exceptions are for designing and adapting materials according to pupil functional level and for selecting materials for social and personal development, which are perceived by supervisors, as by teachers, to be best learned by experience on the job, and for materials evaluation, which is seen to be best taught by regional consultants.

The sources of information about training opportunities most frequently cited both by teachers and by supervisors and other special education personnel are presented in Table 38. Highest on the list is workshops and conferences, chosen by more than half of both respondent groups. Word of mouth from colleagues ranks second, chosen by about 40% of each group. Approximately a third of the teachers receive information about training opportunities from their supervisors or from college bulletins, while over a third of the supervisors and other special education personnel get such information from regional newsletters and professional journals.

Both teachers and supervisors report that direct request is the most common method of making training needs known, where an established procedure exists (44.8% and 64.1%, respectively). However, about a third of all teachers and a quarter of all supervisors report that there is no regular procedure to make training needs known.†

Major obstacles to securing necessary media and materials training (cited by more than 50% of respondents as either a great or moderate obstacle) are reported by teachers in general as the following: training is too expensive;

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† Reference: NNA Statistical Report, Section III, Subsection B,
Question 3 for Teachers in Special Education
Question 4 for Supervisors and Other Special Education Personnel

TABLE 38 §

SOURCES OF INFORMATION ABOUT TRAINING OPPORTUNITIES

Number of Teachers = 9,432
Number of Supervisors/Others = 690

MOST FREQUENTLY CITED SOURCES	PERCENTAGE OF Teachers	PERCENTAGE OF Supervisors/Others
Workshops and Conferences	50.5	57.4
Word of Mouth from Colleagues	43.4	39.1
Supervisor	36.2	-
College Bulletins and Announcements	32.1	-
Regional (In-State) Newsletters	-	36.8
Professional Journals	-	35.2

§ Reference: NNA Statistical Report, Section III, Subsection B
Question 1 for Teachers in Special Education
Question 6 for Supervisors and Other Special Education Personnel

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OBSTACLES TO ACQUIRING NEEDED TRAINING†

OBSTACLES	PERCENTAGE INDICATING "GREAT" OR "MODERATE" Teachers	Supervisors/Others
Too expensive	68.4	69.0
Insufficient released time	67.6	60.2
Inconvenient scheduling of training programs	66.1	63.4
Inconvenient location of training programs	65.3	63.5
Lack of information about training opportunities	56.7	61.5
Needed training not offered	48.4	58.0
Negative attitude of administrators/ other teachers	42.0	40.3
Lack of qualified trainers	40.8	52.5
Other	7.4	8.1

† Reference: NNA Statistical Report, Section III, Subsection B,
Question 2 for Teachers in Special Education
Question 5 for Supervisors and Other Special Education Personnel

insufficient released time; inconvenient scheduling and location of training programs; and lack of information about training opportunities. Teachers in all handicap areas, as well as supervisors, concurred in these, although the order within the top five varied (Table 38).

The complaint of insufficient released time is supported by the fact that 26% of supervisors and other special education personnel report that no teacher inservice time is allocated to media and materials training. Yet 53% of these respondents indicate that, given the teachers' training needs, three or more days should be allocated to this purpose, and most of this group felt that four or more days would be appropriate.†

The use and value of various training resources are presented at the top of Table 39. It is noteworthy that only for instructional materials collections and visiting model programs do equal percentages of supervisors indicate "very useful" and "of some use." All other resources are perceived by at least a 2:1 margin as only of some use.

Moreover, teachers on the whole report that packaged training kits have not played an important role in their training. This is especially true during preservice and inservice, where approximately two-thirds of respondents indicate either that such kits did not play an important role, or that they never used them. About 40% of responding teachers do report exposure to such kits on their own. Teachers of the blind, deaf, and physically handicapped have had somewhat less exposure to such kits than have teachers in other handicap categories. A similar pattern holds for supervisors and other special education personnel (Table 39).

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† Reference: NNA Statistical Report, Section III, Subsection B, Questions 2-3, Respondent Population 7: Supervisors and other Special Education Personnel

TABLE 39

USE AND VALUE OF TRAINING RESOURCES

Number of Teachers = 9,432
Number of Supervisors/Others = 690

HOW USEFUL ARE THE FOLLOWING RESOURCES FOR ASSISTING YOU IN TRAINING TEACHERS IN MEDIA/MATERIALS SKILLS? §

	PERCENTAGE OF SUPERVISORS/OTHERS INDICATING	
	Very Useful	of Some Use
Instructional Materials Collections	33.6	32.6
Consultants	21.7	41.9
Library/Reference Facilities	19.7	41.3
Visiting Model Programs	27.7	28.0
Packaged Training Kits	14.5	40.7

HAVE PACKAGED TRAINING KITS AND/OR PROGRAMMED MATERIALS PLAYED AN IMPORTANT ROLE IN YOUR TRAINING? †

	PERCENTAGE OF TEACHERS			PERCENTAGE OF SUPERVISORS/OTHERS		
	Yes	No	Never Used	Yes	No	Never Used
During Preservice/College	26.8	34.2	32.6	20.1	39.7	32.9
During Inservice	29.4	34.8	29.7	34.2	34.1	24.6
On Your Own	40.7	28.5	25.1	38.3	30.3	23.8

HOW VALUABLE WOULD SELF-INSTRUCTIONAL TRAINING KITS BE FOR YOUR TRAINING NEEDS IN EACH OF THE FOLLOWING SKILLS? *

	PERCENTAGE INDICATING OF "GREAT" OR "SOME" VALUE		
	Teachers	Supervisors/ Others	Supervisors' Opinion of Value for Teachers
Matching Media/Materials to Learner Needs	90.1	90.0	92.0
Adapting Media/Materials	88.6	88.5	90.1
Utilizing Media/Materials	86.6	86.1	89.2
Selecting/Evaluating Media/Materials	85.1	86.1	88.5
Designing Media/Materials	84.5	80.3	82.6
Repairing Media/Materials	60.5	62.3	59.6

References: NNA Statistical Report, Section III, Subsection B,
§ Question 1 for Supervisors and Other Special Education Personnel
† Question 4 for Teachers in Special Education
Question 7 for Supervisors and Other Special Education Personnel
* Question 5 for Teachers in Special Education
Questions 8-9 for Supervisors and Other Special Education Personnel

On the other hand, self-instructional training kits are considered of great potential training value by both teachers and supervisors. Over 85% of teachers in all handicap areas felt such kits to be of great or some value in matching media and materials to learner needs, and adapting, utilizing, selecting, evaluating, and designing media and materials. More than 80% of supervisors and other special education personnel indicated that self-instructional training kits in these same areas would be of value, both for themselves and for the teachers with whom they work (see Table 39).

Training in Special Education Media and Materials: Summary and Discussion

The NNA data dealing with the training needs of teachers and of supervisors and other special education personnel may be summarized as follows:

- Training needs of respondents are seen as especially important in the areas of selecting, designing/adapting, and evaluating media and materials, and training parents in their use -- areas also considered to be most critical to the performance of their jobs.

- The chief sources of prior training in these skills are preservice (college) training and self-training.

- The best sources of future training are seen as college faculty, experience on the job, and, to a somewhat lesser extent, regional consultants.

- Although respondents seemed to indicate that training in the above areas was available, logistical problems and lack of funds, time, and information present obstacles to acquiring such training. Many respondents report that their schools or facilities lack regular procedures for making training needs known, and, in addition, 26% of the supervisors and other special education personnel report that no teacher inservice time is allocated to media and materials training.

- Though respondents indicate a general lack of familiarity with packaged self-instructional training kits or programmed materials, such kits are perceived to be of high potential value in their future training.

Considerations of teacher training in special education involve both short-term objectives to improve the training of teachers presently on the job, and long-term goals necessitated by the future development of new instructional technologies.

Special education teachers emphasize the need to provide greater training opportunities in the areas of selection, design/adaptation, and evaluation of instructional materials. Furthermore, training which already exists in the above priority areas might be made more accessible by reducing time, financial, and logistical barriers cited by teachers. The critical factor in getting teachers appropriately trained appears to be bringing the training situation to them, not expecting them to seek it out on their own.

The above are largely short-term considerations of immediate "here and now" needs of special education classroom teachers as expressed in the NNA. On a long-term basis, however, the previous discussion of the need for both computer technology and for the development of multimedia modular kits in special education classroom instruction have important implications for training of teachers of the handicapped. Though education can be expected to be one of the last frontiers for this advancing technology, it is inevitable that at some point these systems will be the major instructional mode -- the new "textbooks."

Teachers must become thoroughly familiar with the workings of computerized instructional systems -- both hardware and software. Whatever the potential of such systems, under-utilization is virtually certain if prospective users (e.g., classroom instructors) feel intimidated by them or not sufficiently familiar with their special vocabularies, procedures, etc. Moreover, the

systems cannot achieve optimal effectiveness if teachers do not understand how to select and combine the instructional components most appropriate for a particular student.

Preparing teachers to make maximum use of multimedia instructional modules presents the same training problems. In particular, teachers need to have the flexibility and the technical skills to combine and adapt such modules to individual student use. Furthermore, there is a need for improved diagnostic skills on the part of special educators to determine the appropriate match between instructional module and student learning characteristics, an area teachers currently indicate is critical to their job and a high priority for future training. Indeed, such diagnostic capability can be expected to become an integral feature of the computerized systems themselves.

Training in Special Education Media and Materials: Recommendations

1. Intensive development of self-instructional kits for teacher training at the inservice level might reduce several of the logistical barriers noted earlier. For example, such kits could be used on-site, thus eliminating travel time and problems. Reduced need for human trainers may result in lower training costs. In addition, teachers indicated an openness to this form of training, although it is possible that some of the popularity of the kits is due simply to their novelty.

2. Accessibility to needed training could also be improved by providing more college and university extension courses for inservice training, with

such courses being held in the schools themselves or at other central and convenient locations. Teachers presumably would be amenable to such university-sponsored courses, since they indicate in the questionnaire a belief that college and university faculty are highly competent trainers.

3. Much of what teachers express as a need for training can readily be regarded as a need for information. The suggestion made in the preceding section of this report regarding the use of "DEMObiles" to introduce instructional materials to teachers could easily be expanded to accommodate a more intensive exposure to materials selection and evaluation.

4. Some groundwork needs to be laid to prepare teachers for the onset of widespread usage of sophisticated computerized instructional systems. At the same time that such technologies are developed, there is a need for development of preservice training courses to provide future special educators with the skills necessary to make optimal use of such new tools for learning. For teachers already on the job, workshops and seminars should be provided as inservice training. If such training programs begin now, they can contribute valuable feedback on user problems at the design and development stage of the computerized systems.